D-ES51/ES55

SERVICE MANUAL

Ver 1.1 1998. 07

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model

Photo: D-ES55

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM-2801AAA
Optical Pick-Up Name	DAX-01A2

SPECIFICATIONS

System
Compact disc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: Continuous
Laser output: Less than 44.6 µW
(This output is the value measured at a distance of 200 mm from the objective lens surface on the optial pick-up block with 7 mm aperture.)

Error correction
Sony Super Strategy Cross Interleave Reed Solomon Code

D-A conversion
1-bit quartz time-axis control

Frequency response
20 – 20,000 Hz $^{+1}_{-2}$ dB (measured by EIAJ CP-307)

Output (at 4.5 V input level)
Headphones (stereo minijack)
15 mW + 15 mW at 16 ohms

General

Power requirements
For the area code of the model you purchased, check the upper left side of the bar code on the package.
- Sony BP-DM10 Rechargeable battery: 2.4 V DC, Ni-Cd, 650 mAh
- Two LR6 (size AA) batteries: 3 V DC
- AC power adaptor (DC IN 4.5 V jack):
  US, Canadian, E92 model: 120 V, 60 Hz
  AEP, French, E13 model: 220 – 230 V, 50/60 Hz
  UK model: 230 – 240 V, 50 Hz
  Australian model: 240 V, 50 Hz

Dimensions (w/h/d) (without projecting parts and controls)
Approx. 138.3 × 34.3 × 145.8 mm
($5^1/_2 \times 1^3/_8 \times 5^3/_4$ in.)

Mass (without rechargeable batteries)
Approx. 312 g (11.1oz)

Operating temperature
5˚C – 35˚C (41˚F – 95˚F)

— Continued on next page —

COMPACT DISC COMPACT PLAYER

MICROFILM

SONY®

Supplied accessories

For the area code of the model you purchased, check the upper left side of the bar code on the package.

D-ES51

AC power adaptor (1)
AC plug adaptor (1)*
Stereo headphones (1)
* Supplied with E13 model

D-ES55

AC power adaptor (1)
AC plug adaptor (1)*
Stereo headphones (1)
Rechargeable batteries (1)**
* Supplied with E13 model
**Supplied with US model only

Design and specifications are subject to change without notice.

- Abbreviation
  E13: 220 – 230 V AC area
  E92: 120 V AC area

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Befor Replacing the Optical Pick-Up Block

Please be sure to check thoroughly the parameters as par the "Optical Pick-Up Block Checking Procedures" (Part No.: 9-960-027-11) issued separately before replacing the optical pick-up block. Note and specifications required to check are given below.

- FOK output: IC501 ⑫ pin
  When checking FOK, remov the lead wire to disc motor.
- S curve P-to-P value: 0.6 - 1.8 Vp-p IC501 ㉛ pin
  When checking S curve P-to-P value, remove the lead wire to disc motor.
- RF signal P-to-P value: 0.8 - 1.2 Vp-p
- Traverse signal P-to-P value: 1.2 Vp-p
- The repairing grating holder is impossible.

Precautions for Checking Emission of Laser Diode

Laser light of the equipment is focused by the object lens in the optical pick-up so that the light focuses on the reflection surface of the disc. Therefore, be sure to keep your eyes more then 30 cm apart from the object lens when you check the emission of laser diode.

Laser Diode Checking Methods

During normal operation of the equipment, emission of the laser diode is prohibited unless the upper panel is closed while turning ON the S801 (push switch type).
The following two checking methods for the laser diode are operable.

- **Method (In the service mode or normal operation): Emission of the laser diode is visually checked.**

1. Open the upper lid.
2. Push the S801 as shown in Fig. 1.
3. Press the ▶II key.
4. Check the object lens for confirming normal emission of the laser diode. If not emitting, there is a trouble in the automatic power control circuit or the optical pick-up.
   During normal operation, the laser diode is turned ON about 2.5 seconds for focus searching.

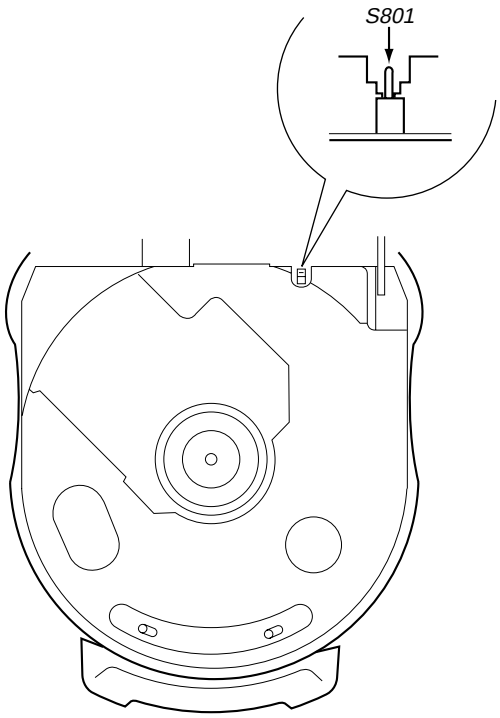


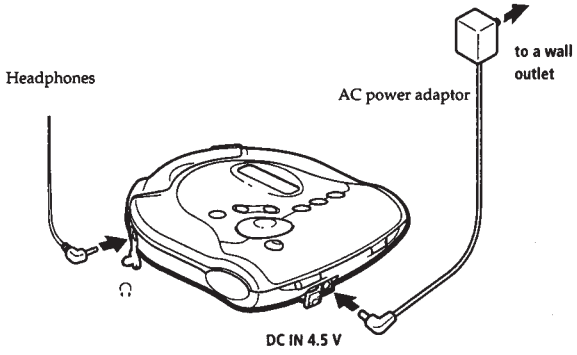
Fig. 1 Method to push the S801

This section is extracted from instruction manual.

Playing a CD right away!

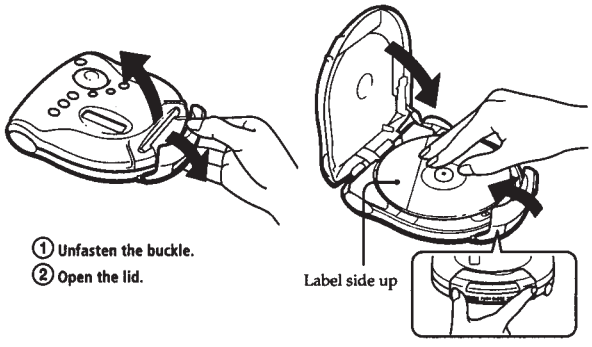
If you want to play a CD right now, choose to use your player on house current. Other choices are the following three: rechargeable battery, dry batteries (see "Power Sources" on the reverse side) and car battery.

1 Connect



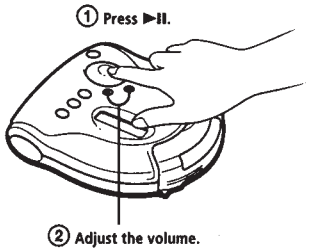
For models supplied with AC plug adaptor
If the AC power adaptor does not fit the wall outlet, use the AC plug adaptor.

2 Place a CD



① Unfasten the buckle.
② Open the lid.
③ Fit the CD to the pivot and close the lid.
④ Fasten the buckle securely by pressing both sides of the buckle.

3 Play



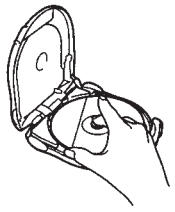
① Press ▶II.
② Adjust the volume.

To stop play, press ■.

To	Press
Pause	▶II
Resume play after pause	▶II
Find the beginning of the current track (AMS*)	I◀◀ once**
Find the beginning of previous tracks (AMS)	I◀◀ repeatedly**
Find the beginning of the next track (AMS)	▶▶I once**
Find the beginning of succeeding tracks (AMS)	▶▶I repeatedly**
Go forward quickly	Hold down ▶▶I**
Go backwards quickly	Hold down I◀◀**

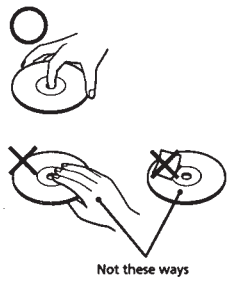
*AMS = Automatic Music Sensor
**These operations are possible during both play and pause.

To remove the CD
Remove the CD while pressing the pivot.



Notes on display
- When you press ▶II (when RESUME is set to OFF), the total number of tracks in the CD and the t2otal playing time appear for about 2 seconds.
- During play, the track number and the elapsed playing time of the current track appear.
- During pause, the elapsed playing time flashes in the display.
- Between tracks, the time to the beginning of the next track will appear with the "–" indication.

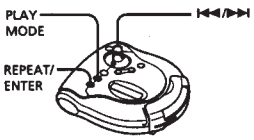
Notes on handling CDs
- To keep the CD clean, handle it by its edge. Do not touch the surface.
- Do not stick paper or tape onto the CD.
- Do not expose the CD to direct sunlight or heat sources such as hot air ducts. Do not leave the CD in a car parked under direct sunlight.



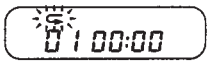
▶Other Operations

Playing tracks repeatedly (Repeat Play)

You can play tracks repeatedly in normal, INTRO PGM, shuffle or RMS (Random Music Sensor) play modes. Repeat all the tracks or only one track.

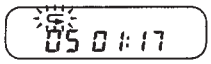


To repeat all the tracks
Press REPEAT/ENTER during play.
The " ⇄ " indication appears.

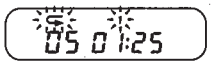


To cancel repeat play, press REPEAT/ENTER again.

To repeat a single track
1 Press REPEAT/ENTER while the track you want to repeat is playing.
The " ⇄ " indication appears.



2 Press PLAY MODE repeatedly until "1" appears.

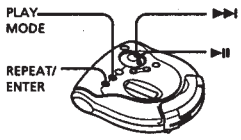


To repeat another track, press I◀◀ or ▶▶I .

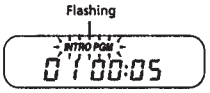
To cancel repeat play, press REPEAT/ENTER again.

Playing only the tracks you want (INTRO PGM Play)

You can choose and play your favorite tracks by scanning through the beginning of each track in a CD.



1 During play, press PLAY MODE repeatedly until "INTRO PGM" flashes.



2 Press ▶II to start scanning .
The player plays about the first 15 seconds of each track and "INTRO PGM" flashes faster.

3 Press REPEAT/ENTER while the track you want is playing. To skip the track, press ▶▶I or just wait for the next track.

After you have gone through the CD, "INTRO PGM" stops flashing and the tracks you have chosen play automatically.

To finish programming before going through the whole CD, press ▶II. The selected tracks will be played.

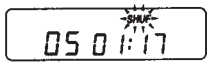
If you press ■, the program will be erased. To prevent accidental erasure, set the RESUME switch to ON.

To cancel INTRO PGM play, press PLAY MODE repeatedly until the play mode indication disappears from the display.

Playing tracks in random order (Shuffle Play)

You can play the tracks in a CD in random order.

During play, press PLAY MODE repeatedly until "SHUF" appears.
The tracks play in random order.



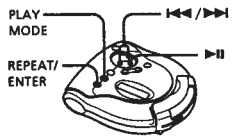
To cancel shuffle play, press PLAY MODE repeatedly until the play mode indication disappears from the display.

Note

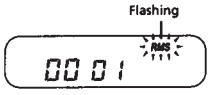
- During shuffle play, you cannot return to previous tracks by pressing ⏮ .

Playing tracks in the order you want (RMS Play)

You can program up to 22 tracks to play in any order you choose.

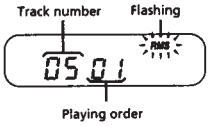


1 During play, press PLAY MODE repeatedly until "RMS*" flashes.



*RMS = Random Music Sensor

2 Press ⏮ or ⏭ to choose a track.
The track number and the playing order appear.



3 Press REPEAT/ENTER to program the track.

4 Repeat steps 2 and 3 to program the remaining tracks.

5 Press ⏯.
"RMS" stops flashing and the tracks you have chosen play in the order you specified.

If you press ■, the program will be erased. To prevent accidental erasure, set the RESUME switch to ON.

To cancel RMS play, press PLAY MODE until "RMS" disappears.

To check the program
During programming:
Press REPEAT/ENTER before step 5.
During RMS play:
Press PLAY MODE repeatedly until "RMS" flashes, then press REPEAT/ENTER.
Each time you press REPEAT/ENTER, the track number and the playing order appear in the order you specified.

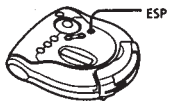
Note

- If you program another track after the 22nd track, the first track programed is cleared and the new track is programed instead.

Using other functions

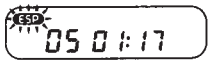
To minimize skipping (ESP²)
The ESP (Electronic Shock Protection) function minimize skipping by using a buffer memory that stores music data and plays it back in the event of a shock.
The new ESP² (ESP Squared) system uses a new DSP (Digital Signal Processor) which can read and store music data more efficiently, providing a level of continuous skip protection not found in traditional buffer memory units. This decreases the frequency of sound skipping and the need to utilize the buffer memory. Use this function when listening in a car or while walking.*

* Although ESP² provides excellent protection against skipping, it will not prevent skipping while jogging or running.



Press ESP.
The ESP indication appears.

To release the ESP function, press ESP again.



Notes

- Playing may stop when the player gets a strong shock even with the ESP function on.
- You may hear a noise or sound skip when:
  — listening to a dirty or scratched CD,
  — listening to an audio test CD or,
  — the player receives continuous shock.
- Sound may drop for a while if you press ESP during play.

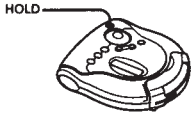
To enjoy more powerful bass sound (Sound function)
You can enjoy a powerful bass-boosted sound.

Press SOUND to select "BASS" or "GROOVE."
"GROOVE" is more effective.

Note

- If the sound is distorted when emphasizing bass, turn down the volume.

To lock the buttons
You can lock your player against any accidental operations.

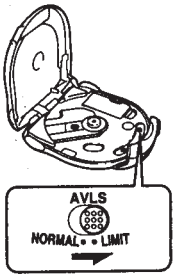


Press HOLD until 🔒 appears in the display and you cannot operate the player.

To unlock, press HOLD until 🔒 disappears from the display.

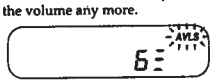
Continue to the reverse side →

To protect your hearing (AVLS)
The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to protect your ears.



Set AVLS to LIMIT.
The AVLS indication appears.

If you turn up the volume to "6", the AVLS indication flashes and you cannot turn up the volume any more.

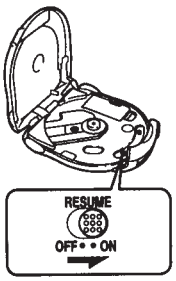


If you want to turn up the volume to more than "6", set AVLS to NORMAL. The AVLS indication disappears from the display.

Note

- If you use the SOUND function and the AVLS function at the same time, sound may be distorted. If this happens, turn down the volume.

To resume playing from the point you stopped the CD (Resume Play)
Normally, every time you stop and play, playing starts from the beginning of the CD. The resume play function, however, let you listen to from the point at which you last turned off the player.



Set RESUME to ON.

To cancel resume play, set RESUME to OFF.

Notes

- Even if RESUME is set to ON, playing starts from the beginning when you open the lid.
- The resume point may be inaccurate by about 30 seconds.

To turn off the beep
You can turn off the beep that sounds as you operate your player.

Disconnect the power source (AC power adaptor, rechargeable battery or alkaline batteries). While you press and hold down ■, connect the power source again. To make the beep sound again, disconnect the power source, and then connect it without pressing ■.

Playing a CD in a car

You can use your player in a car by connecting it to the car cassette deck.

You cannot use the car mount plate for this player.
When you use the player in a car, install it securely in a location which does not interfere your driving.

To connect your player to a car cassette deck, you need the following accessories:
- Car connecting pack
- Car battery cord

or,
- Car battery cord with car connecting pack DCC-E26CP

Refer to the instruction manual of each accessory for details.

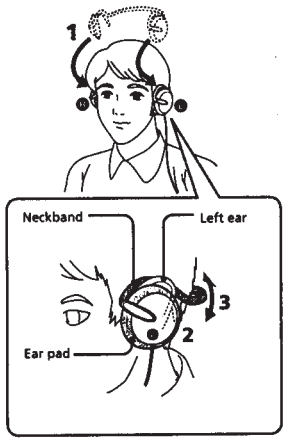
Notes

- Do not put the player on the dashboard.
- Do not leave the player in a car parked under sunlight.
- Use a Sony car connecting pack for reducing noise.
- Use only the car battery cord listed in the recommended accessories. If you use any other car battery cord, smoke, fire or malfunction may occur.

Switched ignition function (when using the car battery cord)
With this feature, your player stops automatically when you turn off the engine of the car. (This function is not possible with some cars depending on the model.)

Using the supplied headphones

For the customers having purchased the D-ES55 model



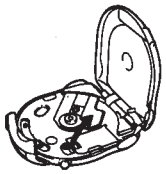
1 Wear the neckband around the back of your head. The cord should be hanging from the left side.
2 Put your left ear between the earpad (marked L on the outside) and the neckband, and your right ear between the earpad (marked R on the outside) and the neckband.
3 Adjust the angle of the neckband to fit the headphones on your ears.

▶Power Sources

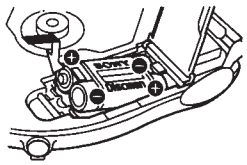
Using rechargeable battery

Charge the rechargeable battery before using it for the first time.
Use only BP-DM10 rechargeable battery for this player. Do not use any other rechargeable batteries.

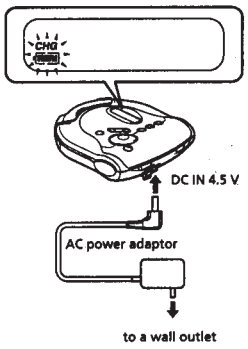
1 Open the lid of the battery compartment.



2 Insert the rechargeable battery so that the word "SONY" is facing the same direction as illustrated on the lid.



3 Connect the AC power adaptor.
The indication "CHG" lights up. Charge for about 2 hours.
(If the battery has been already charged, "CHG" and ■■ flash.)



4 When fully charged, "CHG" disappears. Disconnect the AC power adaptor.

When to charge the rechargeable battery

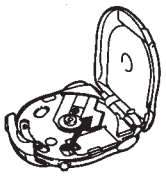
When the rechargeable battery becomes weak, ▭ indication appears in the display. If the "Lo bAtt" appears in the display, charge the rechargeable batteries, because the battery is used up.
To keep the original battery capacity for a long time, recharge the battery when the battery is used up (discharged).

Notes

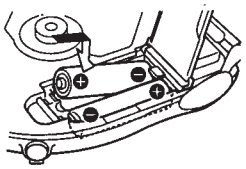
- Charging time varies depending on how the rechargeable battery is used.
- If the battery is new or has not been used for a long time, it may not be charged completely until you charge and discharge it several times.
- If the battery life becomes shorter by about half, replace it with Sony BP-DM10 rechargeable battery. Do not use any other rechargeable battery (R6 type rechargeable battery, etc.).

Using dry batteries

1 Disconnect the AC power adaptor and open the lid of the battery compartment.



2 Insert two LR6 (size AA) alkaline batteries by matching the ⊕ and ⊖ to the diagram inside the battery compartment and close the lid.

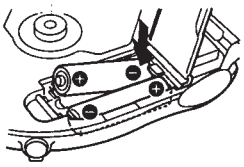


Note

- Do not use manganese batteries for this player.

To take out the dry batteries

Press the ⊖ side of the battery as shown.



When to replace the dry batteries

When the battery becomes weak, ▭ indication appears in the display. If the batteries are used up, "Lo bAtt" appears in the display. Replace all the batteries with new ones.

Notes

- Do not charge the dry batteries.
- Do not mix new batteries with old ones.
- Do not use different types of batteries together.
- When the batteries are not to be used for a long time, remove them.
- If the battery leakage occurs, wipe off any deposit in the battery compartment, and install new batteries.

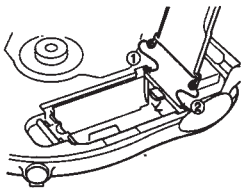
Battery life (approx. hours) (EIAJ*)

When using	ESP function off	on
BP-DM10 (charged for about 2 hours**)	4	3.5
Two alkaline batteries LR6SG	14	13

*Measured value by the standard of EIAJ (Electronic Industries Association of Japan) (When you use the player on a flat and stable place)
**Charging time varies depending on how the rechargeable battery is used.

How to attach the battery compartment lid

If the battery compartment lid is detached by an accidental drop, excessive force, etc., attach it as illustrated in the numbered order.



▶Additional Information

Precautions

On safety

- Should any solid objects or liquid fall into the player, unplug it and have it checked by qualified personnel before operating it any further.
- Do not put any foreign objects in the DC IN 4.5 V (external power input) jack.

On power sources

- When you are not using the player for a long time, disconnect all power sources from the player.

On the AC power adaptor

- Use only the supplied AC power adaptor. If your player is not supplied with it, use AC-E45HG AC power adaptor. Do not use any other AC power adaptor.

Polarity of the plug

- To unplug the AC power adaptor from the wall outlet, grasp the adaptor itself, do not pull its cord.

On dry and rechargeable batteries

- Do not throw the batteries into fire.
- Do not carry the batteries with coins or other metallic objects. It can generate heat if the positive and negative terminals of the battery are accidentally contacted by a metallic object.

On the player

- Keep the lens on the player clean and do not touch it. If you do so, the lens may be damaged and the player will not operate properly.
- Do not put any heavy object on top of the player. The player and the CD may be damaged.
- Do not leave the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust or sand, moisture, rain, mechanical shock, unleveled surface, or in a car with its windows closed.
- If the player causes interference to the radio or television reception, turn off the player or move it away from the radio or television.
- Do not wrap the player in a cloth or blanket during use as it may cause malfunction or serious accidents.

On headphones

Road safety

Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in some areas. It can also be potentially dangerous to play your headsets at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce volume or discontinue use.

Caring for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate to the people around you.

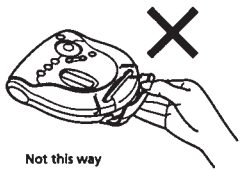
On the water resistance

- Before unfastening the buckle to open the lid, be sure to wipe off water, dust or sand on the exterior of the unit. Open and close the lid where water or sand cannot fall in the unit, and make sure that your hands are dry. If water or sand falls in the unit, trouble may occur.
- When closing the lid, check that there is no dust or sand on the rubber packing around the lid. Then close the lid firmly with the buckle.
- The supplied headphones are not meant to be immersed in water or come in continuous contact with water. If they are accidentally dropped into water or get wet, dry them with a soft cloth. Never use an electric hair dryer.
- The supplied AC power adaptor is not water resistant. To prevent shock hazard, avoid using the player near water during AC operation.
- Cover the DC IN 4.5 V jack and ∩ jack with the attached rubber caps when nothing is connected to these jacks. If the inside of the jacks are contaminated with water or sand, rust may develop and caused trouble.

Notes

- Since the unit is airtight, you may not be able to open the lid when there is a sudden change in air pressure inside the unit. This happens when the unit is transported on a plane or moved from a warm place to a cold place. In this case, open the rubber cap on the DC IN 4.5 V jack.
- To prevent water from leaking in, the buckle is designed to be slightly stiff. Be careful not to catch a fingernail on the buckle when unfastening the lid.

Do not hold the player with the buckle by itself. Doing so may damage the unit.



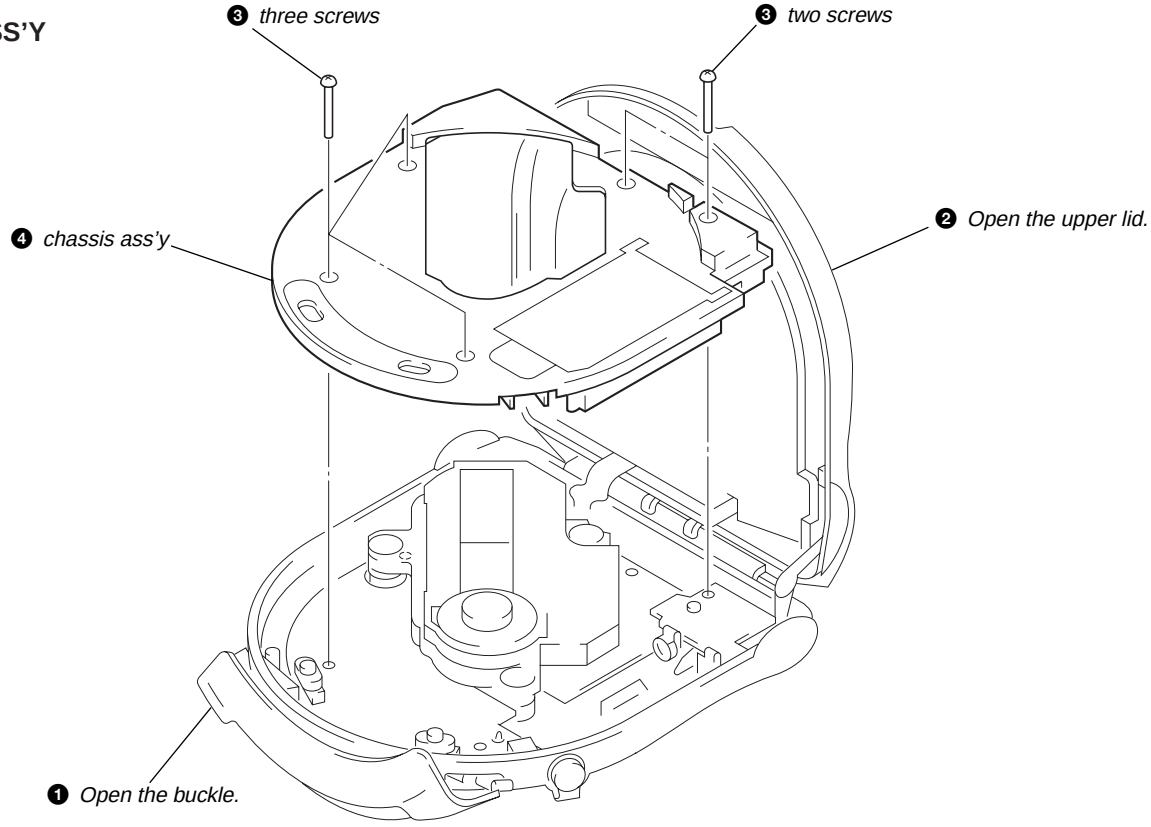
Not this way

SECTION 3
DISASSEMBLY

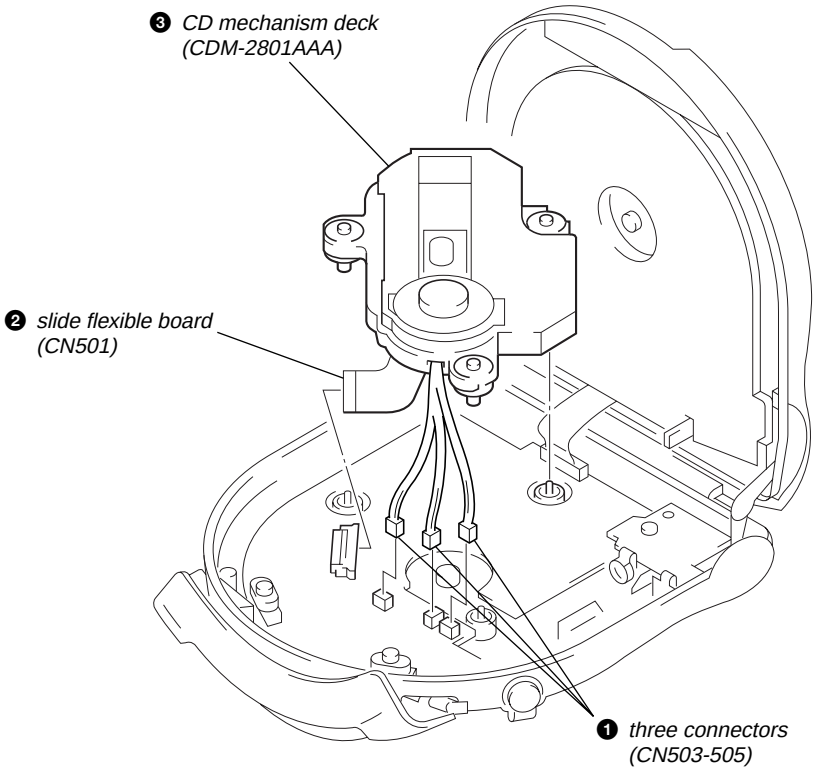
• This set can be disassembled in the order shown below.

Note: Follow the disassembly procedure in the numerical order given.

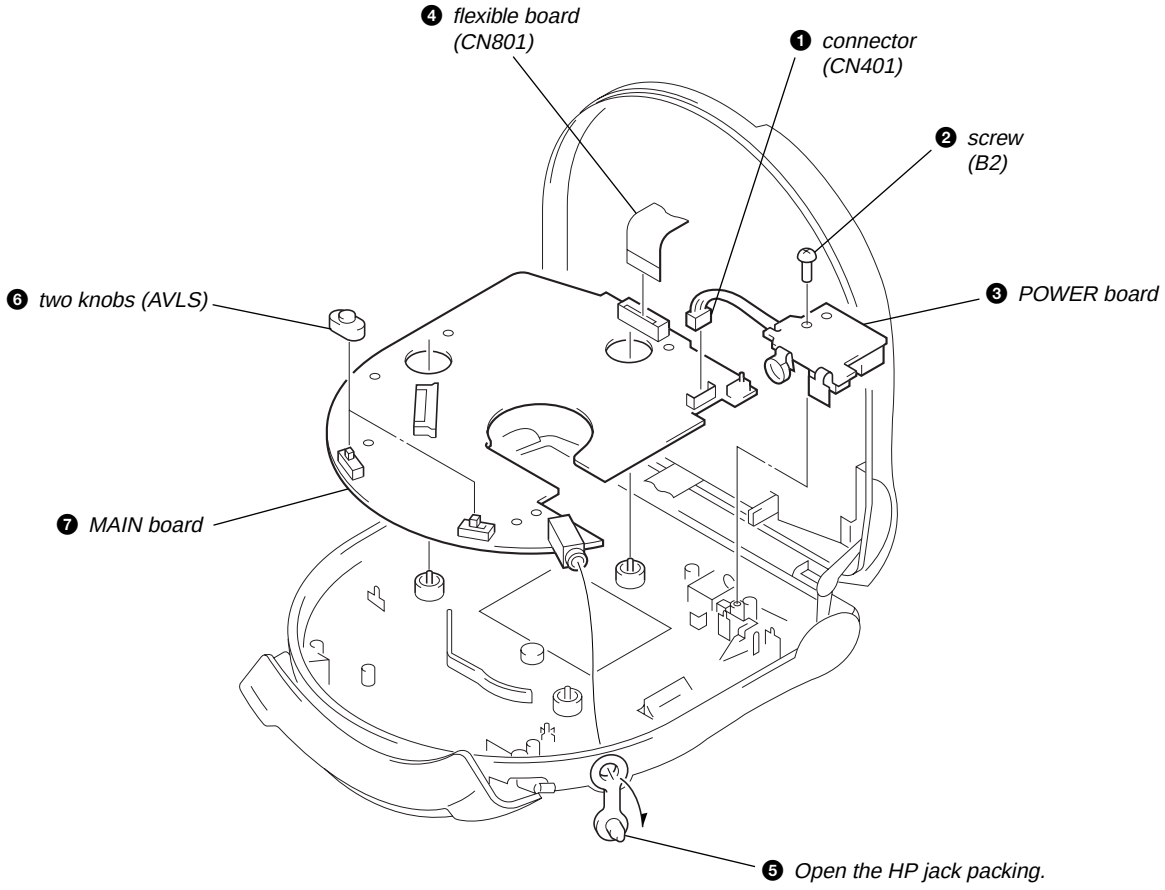
CHASSIS ASS'Y



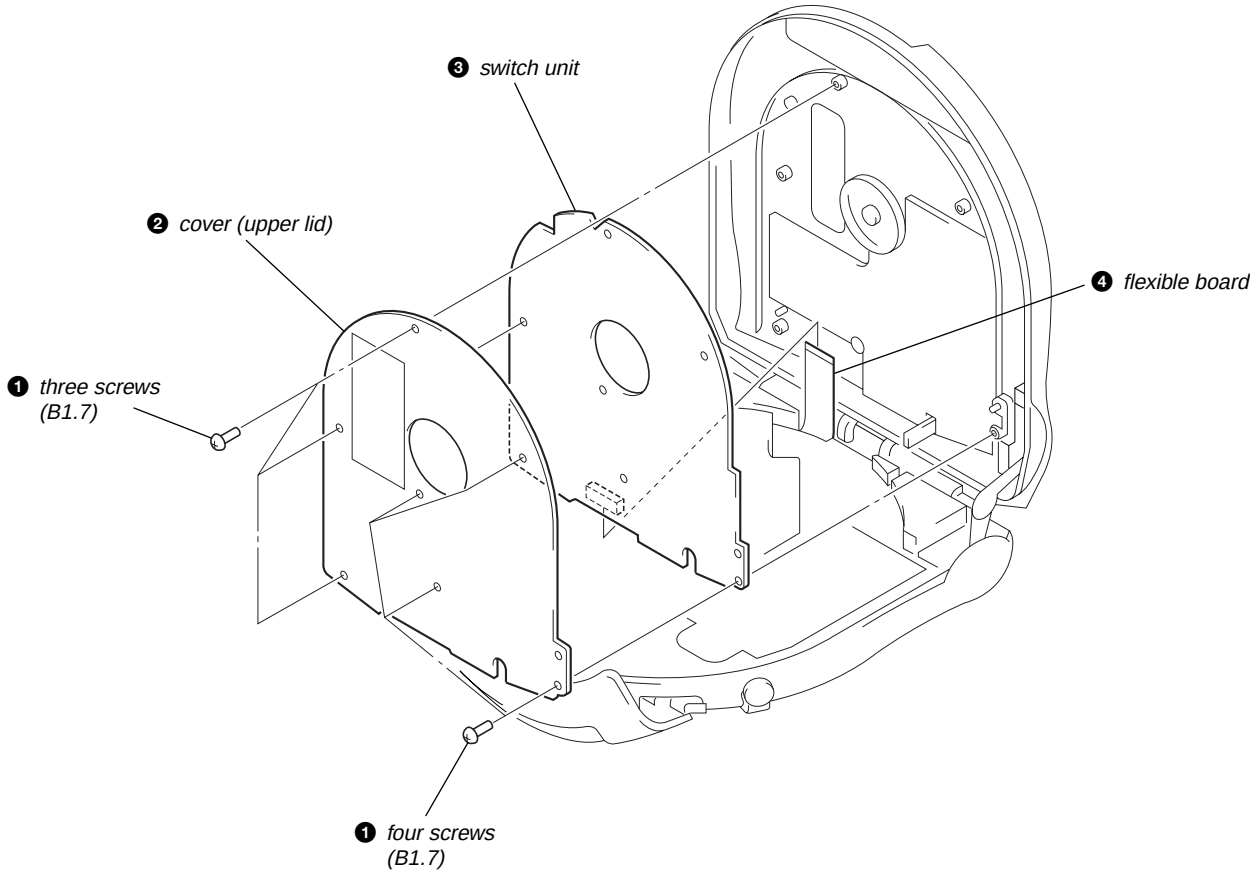
CD MECHANISM DECK (CDM-2801AAA)



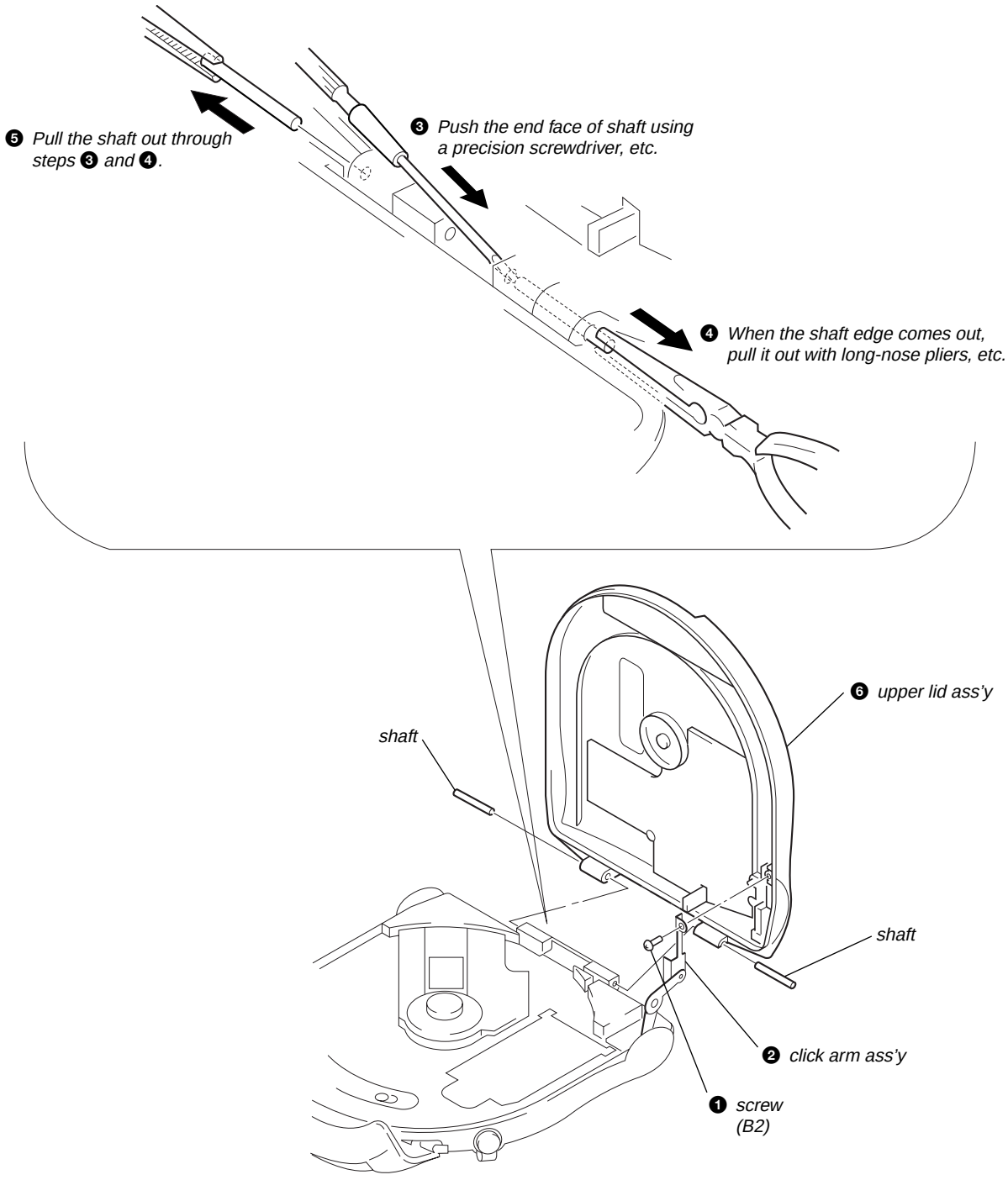
MAIN / POWER BOARD



SWITCH UNIT



UPPER LID ASS'Y

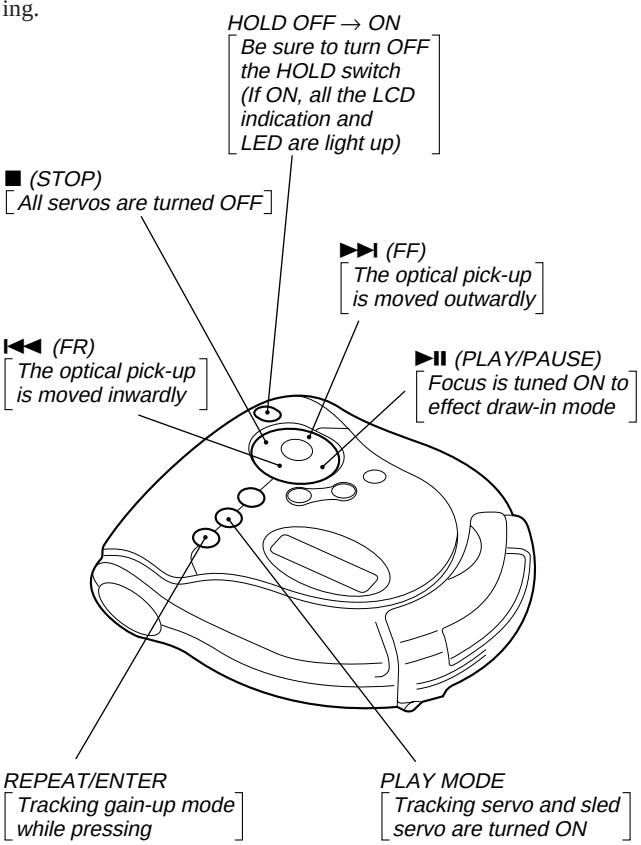

❺ Pull the shaft out through steps ❸ and ❹.
❸ Push the end face of shaft using a precision screwdriver, etc.
❹ When the shaft edge comes out, pull it out with long-nose pliers, etc.
❻ upper lid ass'y
shaft
shaft
❷ click arm ass'y
❶ screw (B2)

SECTION 4
SERVICE MODE

Service Mode (Service program)

The equipment is provided with a service program built in the microcomputer, like conventional models.

Service program operation methods are described in the following.


HOLD OFF → ON
Be sure to turn OFF the HOLD switch (If ON, all the LCD indication and LED are light up)
■ (STOP)
All servos are turned OFF
▶▶I (FF)
The optical pick-up is moved outwardly
I◀◀ (FR)
The optical pick-up is moved inwardly
▶II (PLAY/PAUSE)
Focus is tuned ON to effect draw-in mode
REPEAT/ENTER
Tracking gain-up mode while pressing
PLAY MODE
Tracking servo and sled servo are turned ON

Descriptions in [ ] indicate major operations in the service mode. For more information, see Step 2.

Fig. 1 Layout of each key

• Step 1 (Service mode setting methods)

1. Turn OFF the HOLD switch with external power supply disconnected (power is not applied to the set).
2. Solder across the TEST terminals (TAP807) (pin ⑭, IC801 (TEST) is grounded).
3. Connect an external power supply.

   Thus, the set is switched to the service mode.

• Step 2 (Operation in the service mode)

1. Once the service mode is effected, the LCD displays 5 indications each of which is repeatedly displayed.
   However, the following operations can be activated even if LCD indication is effected.
2. By pressing the ▶▶I or I◀◀ key, the optical pick-up is movable inwardly or outwardly. However, if this is activated, tracking servo and sled servo are turned OFF, so it can be turned ON by pressing the PLAY MODE key if required.
3. By pressing the REPEAT/ENTER key, the tracking gain-up mode becomes active.
4. By pressing the ▶II key, focus is turned ON from focus searching while entering CLV-S (draw-in mode).
   Without disc, focus searching is repeated continuously.
5. By pressing the PLAY MODE key, tracking servo, sled servo and CLV-A (servo in PLAY) are turned ON.
6. When 4. an 5. are performed, playing begins. No muting is ON in the service mode.
7. By pressing the ■ key, all servos (focus, tracking and sled) are turned OFF. However, the disc motor revolves for a while by inertia.

• Step 3 (Resetting of service mode)

1. Be sure to disconnect the external power supply and remove the solder bridge at the TEST terminals connected before in setting.
2. The set thus becomes available for normal operation.

– MAIN BOARD – (Side A)

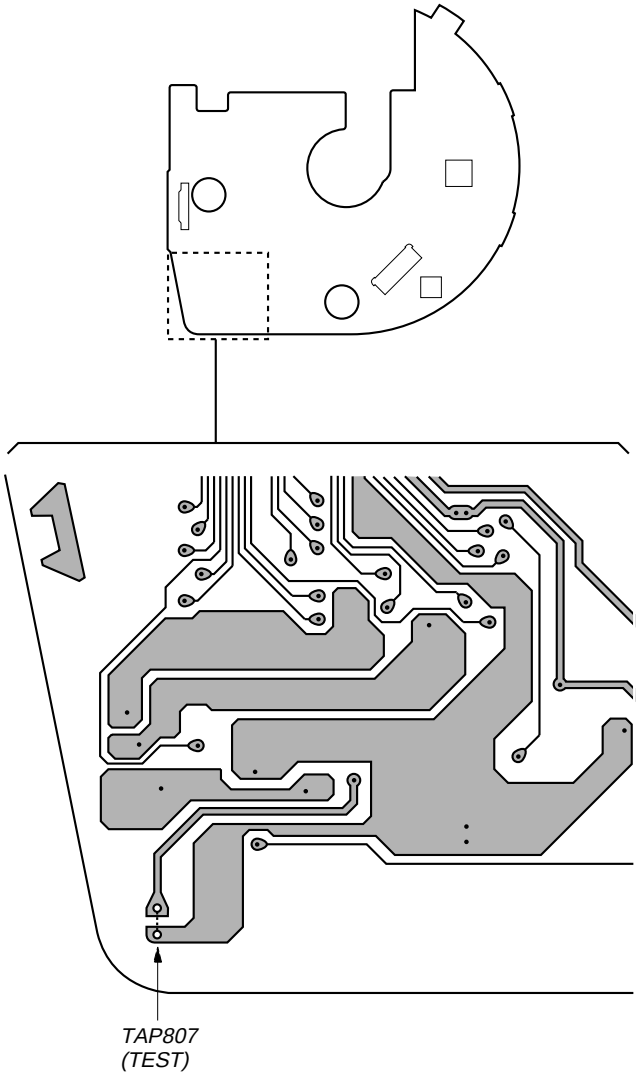


Fig. 2 Location of Test terminal

SECTION 5
ELECTRICAL ADJUSTMENTS

Precautions for Adjustment

1. Before beginning adjustment, set the equipment to service mode.
   After the completion of adjustment, be sure to reset the service mode.
   For more information, see "Service Mode (service program) " on page 10.
2. Perform adjustments in the order given.
3. Use YEDS-18 disc (Part No.: 3-702-101-01) unless otherwise indicated.
4. Power supply voltage requirement: DC2.5 V in battery terminal
   VOLUME knob : Minimum
   SOUND switch : OFF
   RESUME switch : OFF
   ESP switch : OFF
   AVLS switch : NORMAL
   HOLD switch : OFF

Before Beginning Adjustment

Set the equipment to service mode (See page 10) and check the following. If there is an error, repair the equipment.

• Checking of the sled motor

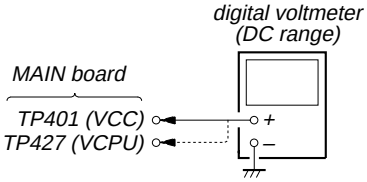
1. Disengage the buckles and open the upper panel.
2. Press the ▶▶I and I◀◀ keys and check that the optical pick-up can move smoothly without sluggishness or abnormal noise in innermost periphery ⟶ outermost periphery ⟶ innermost periphery
   ▶▶I : The optical pick-up moves outwardly.
   I◀◀ : The optical pick-up moves inwardly.

• Checking of focus searching

1. Disengage the buckles and open the upper panel.
2. Press the ▶II key. (Focus searching operation is activated continuously.)
3. Check the object lens of the optical pick-up for smooth up/down motion without sluggishness or abnormal noise.
4. Press the ■ key.
   Check that focus searching operation is deactivated. If not, again press the ■ key slightly longer.

+B Voltage Adjustment

Adjustment Procedure:



(See page 13)

1. Set the equipment to service mode stop state. (See page 10.)
2. Connect the digital voltmeter to TP401 (VCC) of the MAIN board.
3. Adjust RV401 on the MAIN board so that the reading on digital voltmeter goes 2.73-2.77 V.
4. Connect the digital voltmeter to TP427 (VCPU) on the MAIN board, and confirm that a reading of digital voltmeter is 2.97-3.07 V.
5. After the completion of adjustment, reset service mode. (See page 10.)

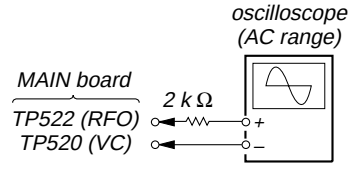
Adjustment Location: MAIN board (See page 13.)

Focus bias Check

Condition:

• Hold the set in horizontal state.

Check Procedure:

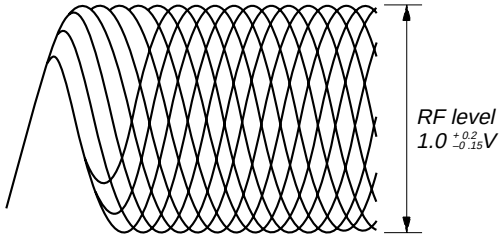


(See page 13)

1. Set the equipment to service mode stop state. (See page 10.)
2. Connect the oscilloscope to the test point TP522 (RFO) of the MAIN board.
3. Move the optical pick-up to the center by pressing the ▶▶I and I◀◀ keys.
4. Put the disc (YEDS-18).
5. Press the ▶II key.
   [From focus searching, focus is turned ON while entering CLV drawing-in mode. Tracking and sled are turned OFF.]
6. Press the PLAY MODE key. (Both tracking and sled are turned ON.)
7. Check the oscilloscope waveform is as shown below.
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

RF SIGNAL REFERENCE WAVEFORM (EYE PATTERN)

VOLT/DIV : 200 mV (With the 10:1 probe in use)
TIME/DIV : 500 ns



To watch the eye pattern, set the oscilloscope to AC range and increase the vertical sensitivity of the oscilloscope for easy watching.

8. Stop revolving of the disc motor by pressing the ■ key.
9. After the completion of adjustment, reset service mode. (See page 10.)

Check Location: MAIN Board (See page 13.)

Focus/Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly.

> However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up relative to mechanical noise and mechanical shock when the 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is rased, the noise when 2-axis device operates increase.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment has to be performed upon replacing any of the following parts.

- Optical pick-up
- RV503 (Focus gain VR)
- RV502 (Tracking gain VR)

> Normally, be sure not to move RV503 (focus gain VR) and RV502 (tracking gain VR).

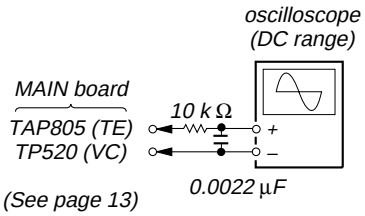
Adjustment method:

– Focus Gain Adjustment –

This adjustment is not performed.
If focus gain VR RV503 is turned, set to mechanical center.

– Tracking Gain Adjustment –

(perform at normal operation)



1. Place the optical pick-up level, horizontally. (If the optical pick-up is not level, the 2-axis device will be weighted and adjustment cannot be done.)
2. Connect the oscilloscope to TAP805 (TE) and TP520 (VC) on MAIN board.
3. Set the disc (YEDS-18) and press the ▶II key.
4. Turn RV502 slightly clockwise (tracking gain drops) and obtain a waveform with a fundamental wave (waveform has large waves) as in Figure 1.
5. Turn RV502 slowly counterclockwise (tracking gain rises) until the fundamental wave disappears (no large waves) as in Figure 2.
6. Set RV502 to the position about 30˚ counterclockwise form the position obtained in step 5. If RV502 contact point is more than 90˚ counterclockwise from mechanical center, tracking gain is too high. In this case, readjust from step 4.
7. Press ▶▶I or I◀◀ key and observe the 100 track jump waveform. Check that no traverse waveform appears for both ▶▶I or I◀◀ directions. (See Figures 3 and 4.) It is acceptable if the traverse waveform appears only now and then, but if it appears constantly, raise tracking gain slightly and check step 7 again.
8. Check that there is not abnormal amount of operation noise (white noise) from the 2-axis device. If there is, tracking gain is too high, readjust starting with step 4.

The waveforms are those measured with the oscilloscope set as shown below.

- VOLT/DIV: 500 mV
- TIME/DIV: 5 ms

- Waveform when tracking gain is lowered.
  Fundamental wave appears (large waves).

Fig. 1

- Waveform when fundamental wave disappears (no large waves).

Fig. 2

- Waveform with no traverse waveform during 100 track jump. (Brake application is smooth because of adjustment.)

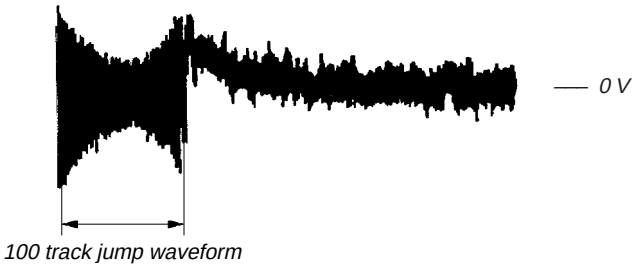


Fig. 3

- Waveform with traverse waveform during 100 track jump. (Brake application is poor because of adjustment.)

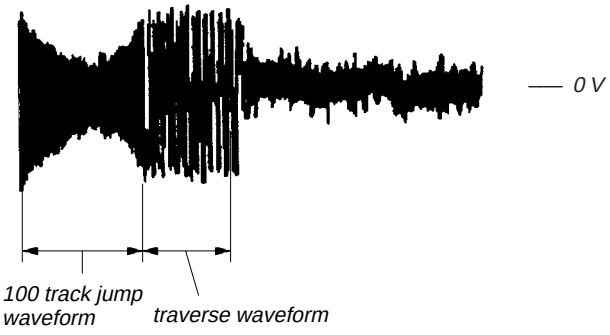
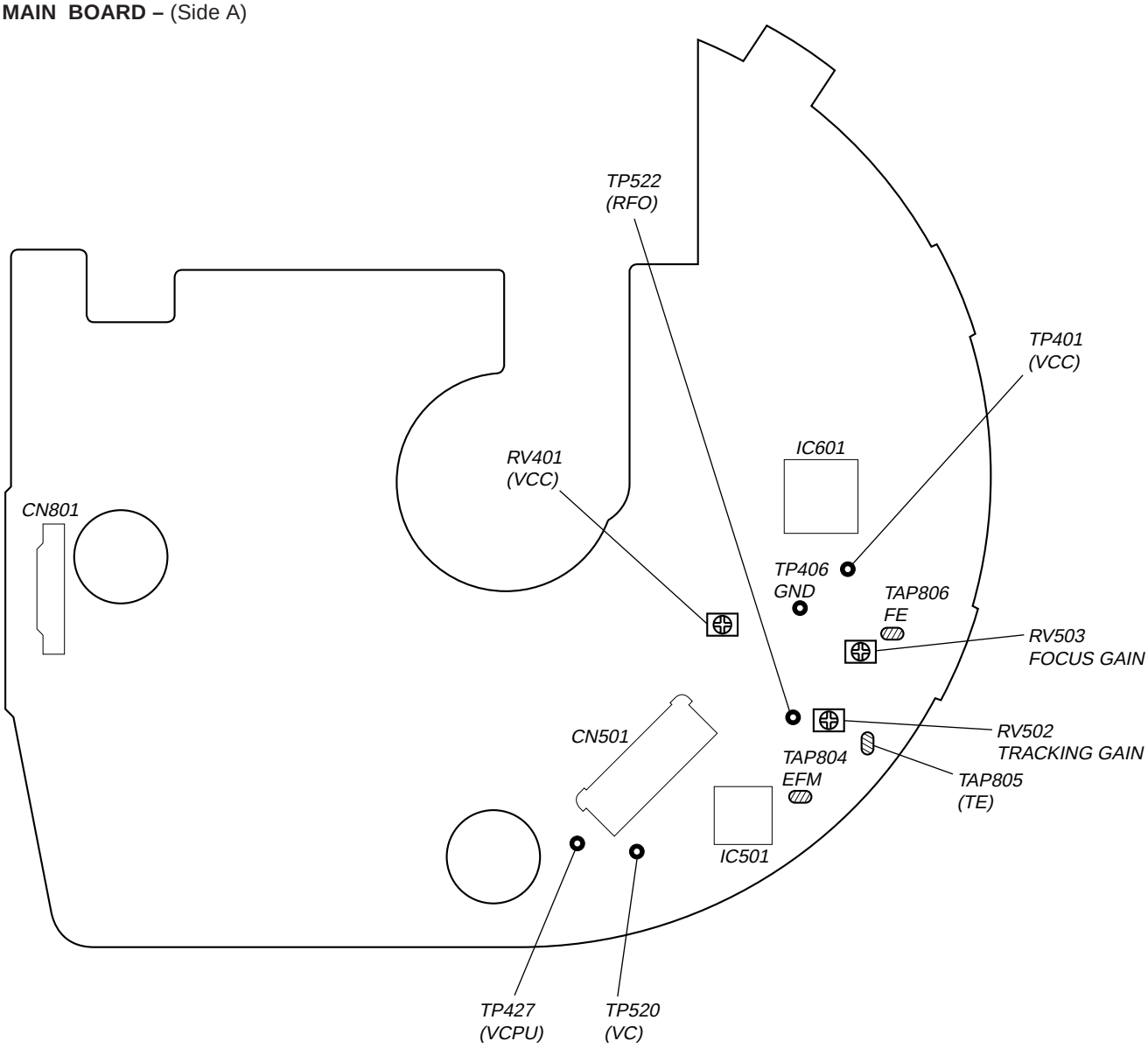


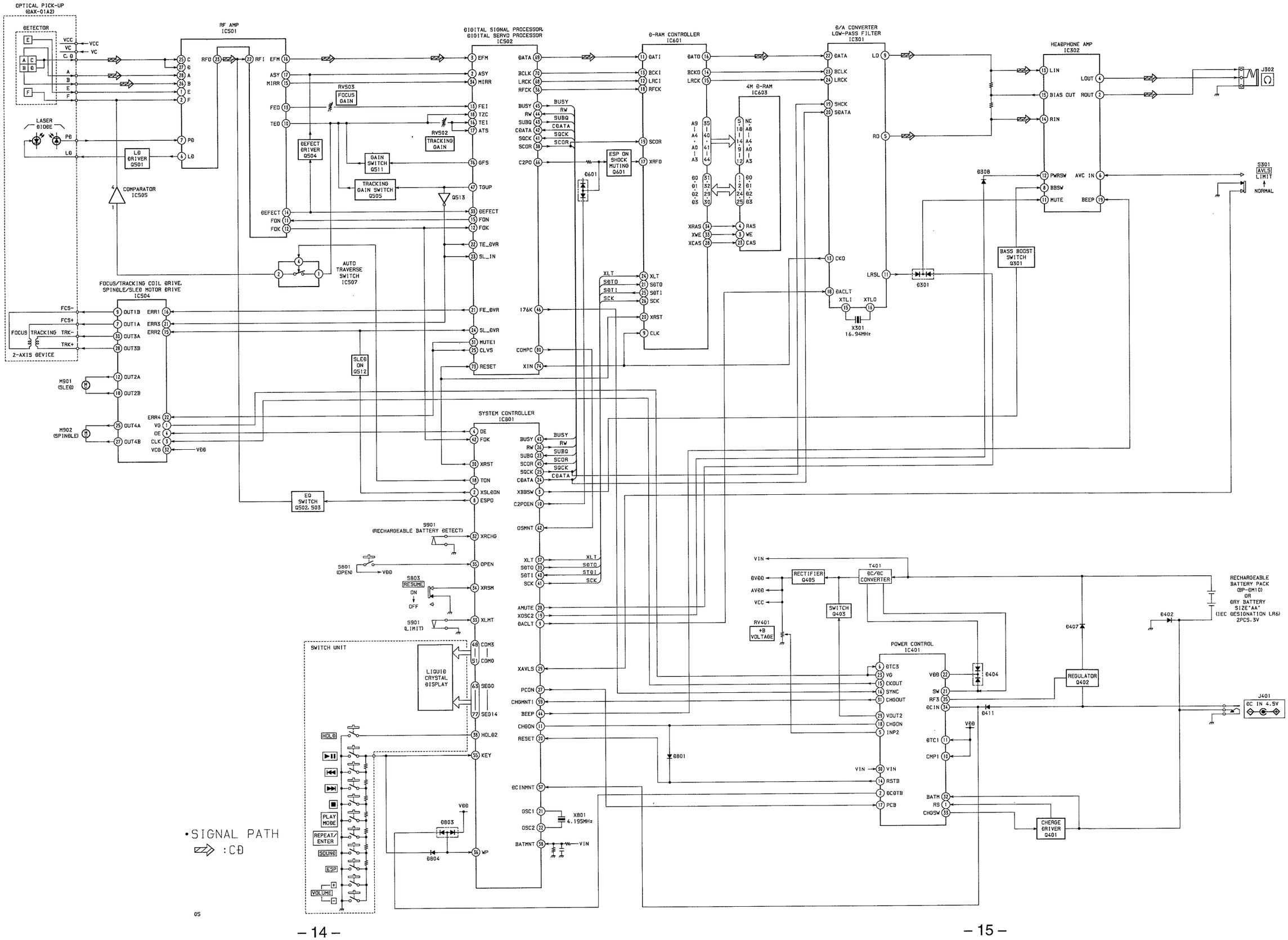
Fig. 4

Adjustment Parts Location:
– MAIN BOARD – (Side A)



SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAM



6-2. PRINTED WIRING BOARDS

- **Semiconductor Location**

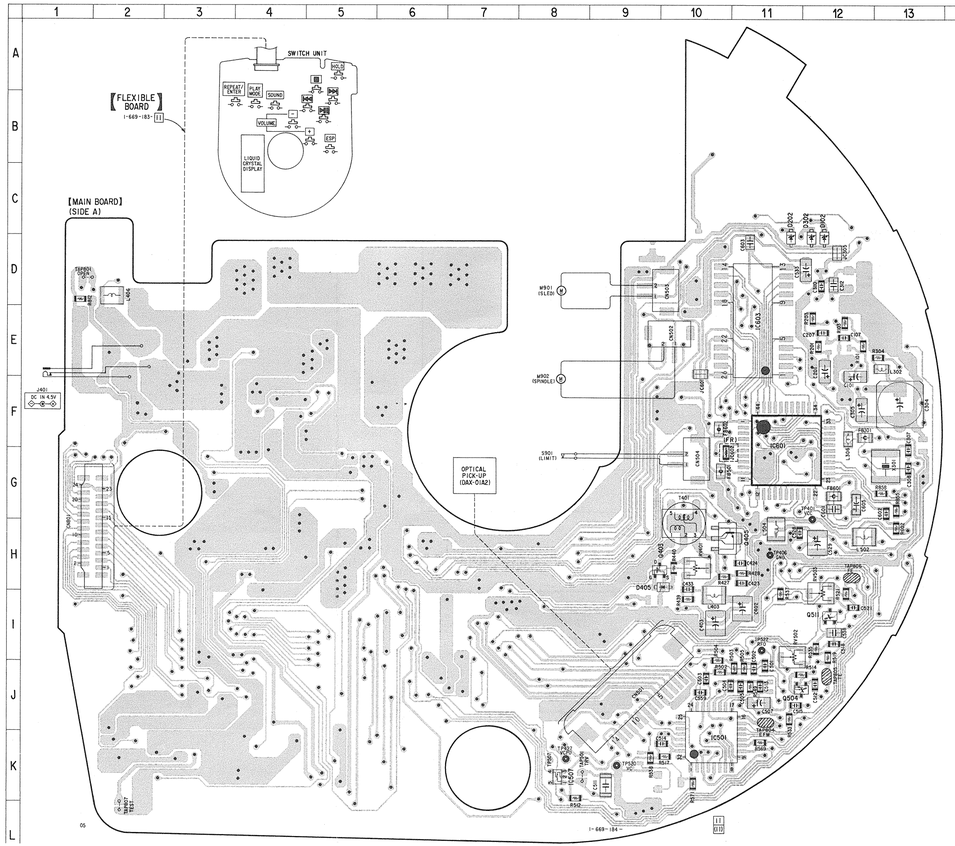
Ref. No.	Location
D102	D-12
D202	D-11
D301	E-15
D302	D-12
D308	I-22
D402	F-24
D404	F-23
D405	H-10
D407	D-20
D411	E-24
D511	F-16
D601	G-15
D801	G-22
D803	H-26
D804	H-26
D805	H-25
D811	G-26
IC301	F-15
IC302	D-15
IC401	F-23
IC501	K-10
IC502	H-16
IC504	E-17
IC505	K-19
IC507	K-8
IC601	F-11
IC603	E-11
IC801	I-24
Q301	D-15
Q401	E-24
Q402	D-23
Q403	H-10
Q405	H-11
Q501	J-18
Q502	K-19
Q503	K-19
Q504	J-11
Q505	J-16
Q511	I-12
Q512	H-18
Q513	I-18
Q601	H-15

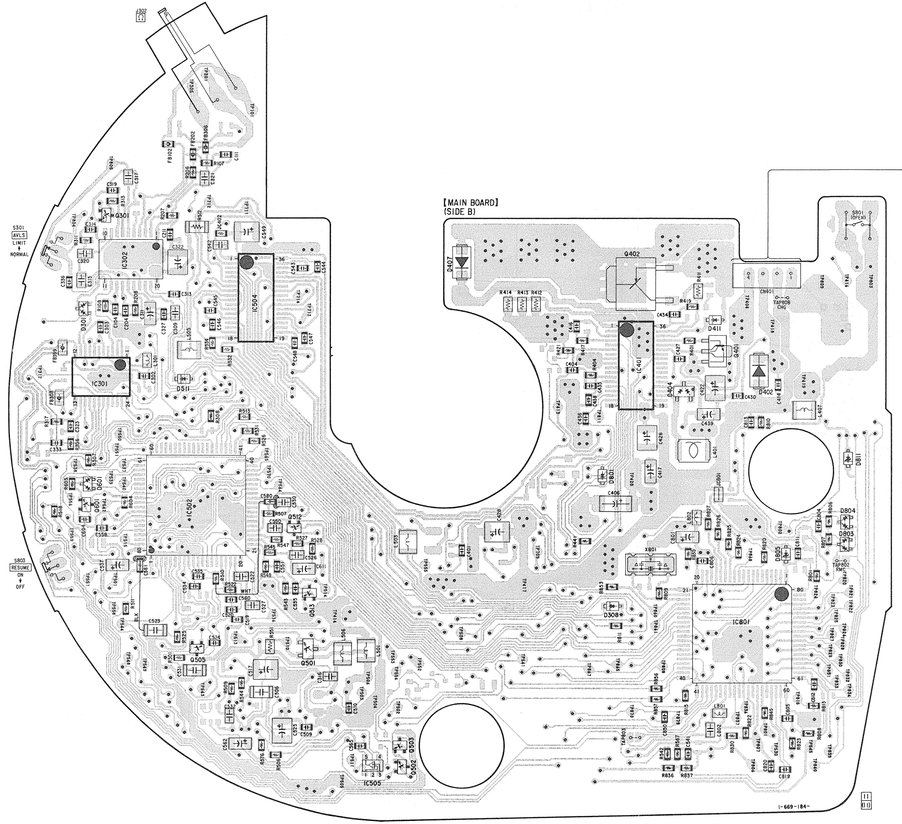
Note on Printed Wiring Boards:
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.

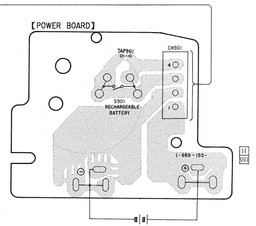
(The other layers' patterns are not indicated.)

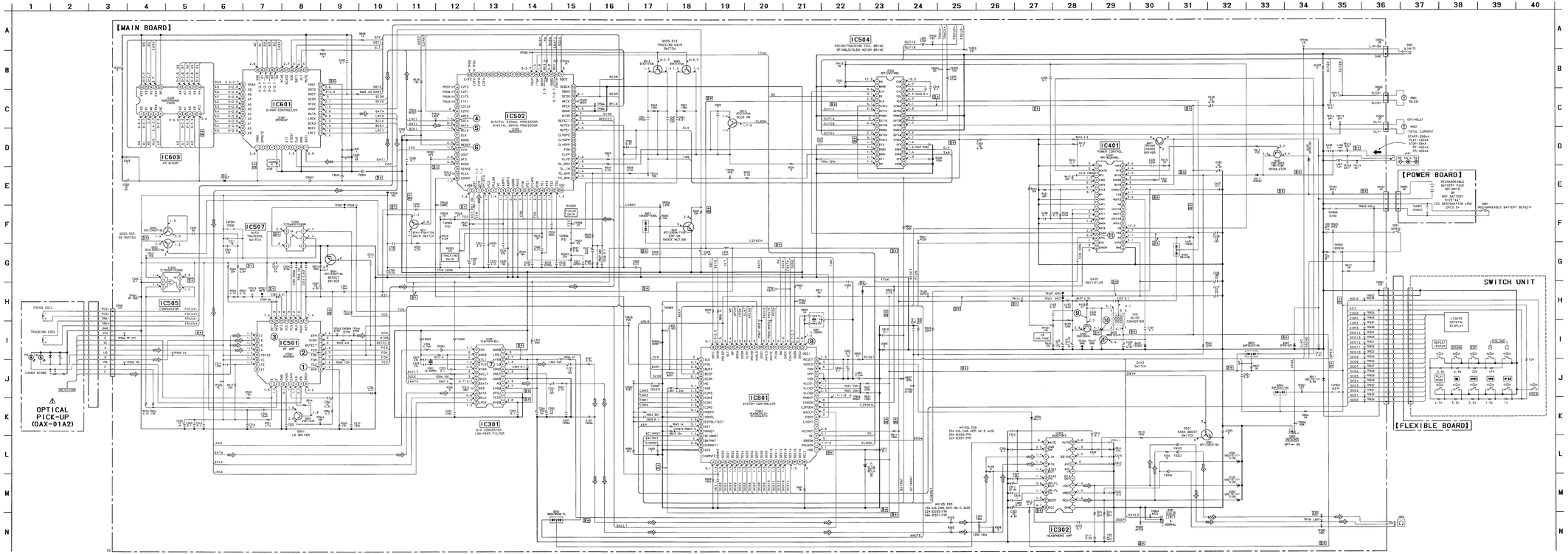
Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the pattern face are indicated.

- Abbreviation
  FR : French model.









Note on Schematic Diagram:

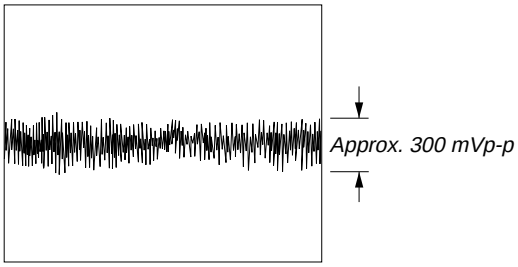
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

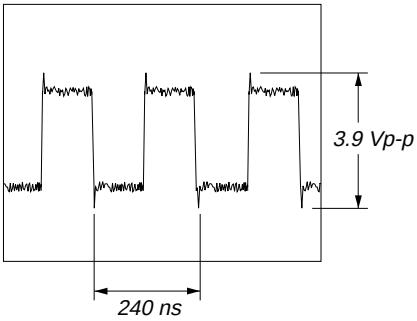
Note:	Note:
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground under conditions in service mode.
  no mark : PLAY
  ( ) : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
- Abbreviation
  AUS : Australian model.
  CND : Canadian model.
  FR : French model.

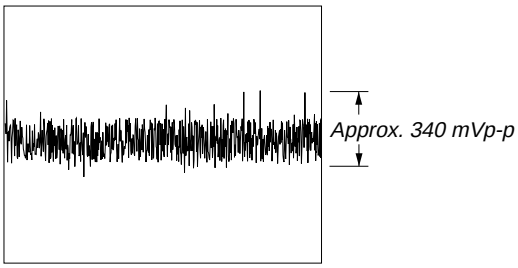
• Waveforms

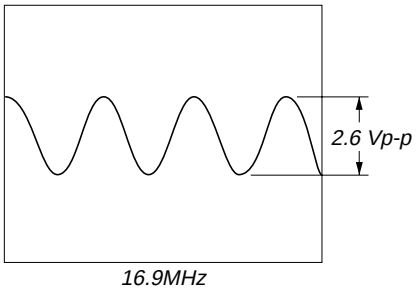
❶ IC501 ⑩ (TEO) (PLAY MODE)
500 mV/DIV, 1 ms/DIV



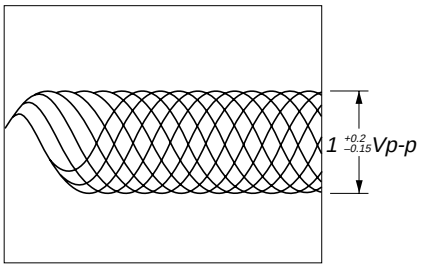


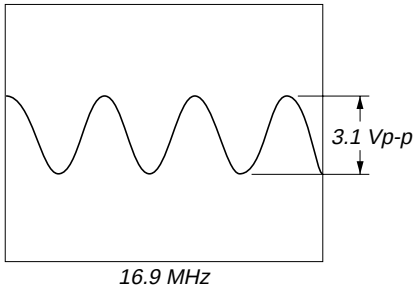
❷ IC501 ⑬ (FEO) (PLAY MODE)
500 mV/DIV, 10 ms/DIV



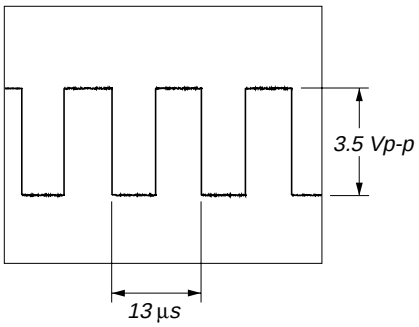


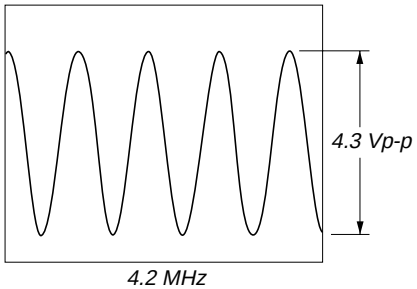
❸ IC501 ㉓ (RFO) (PLAY MODE)
500 mV/DIV, 1 µs/DIV



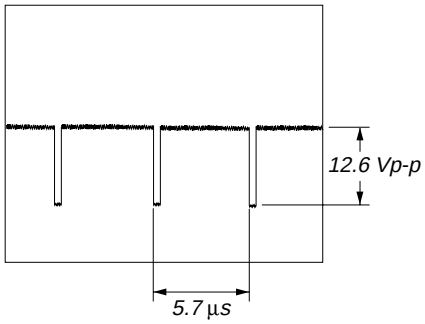


❹ IC502 ㊽ (LRCK)
1 V/DIV, 5 µs/DIV

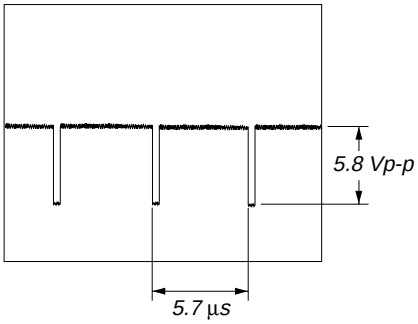




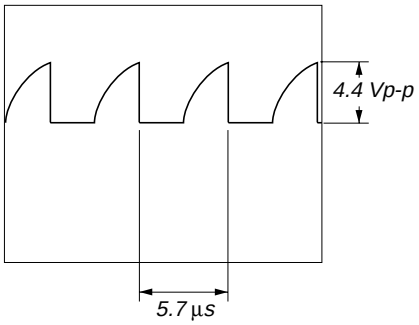
❾ Q405 Ⓑ
5 V/DIV. 2 µs/DIV



❿ Q405 Ⓒ
2 V/DIV. 2 µs/DIV

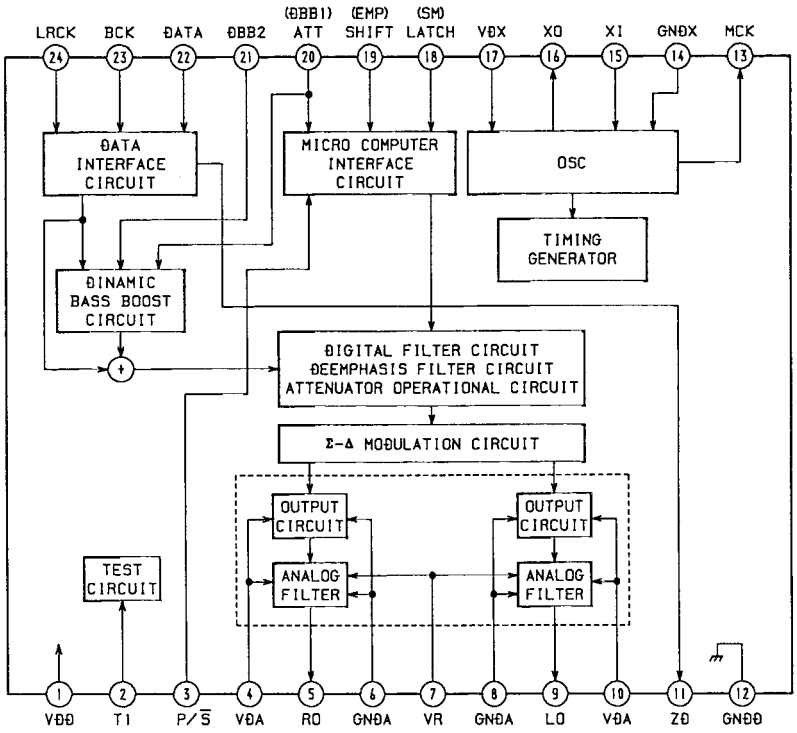


⓫ IC401 ⑮ (CKOUT)
2 V/DIV, 2 µs/DIV

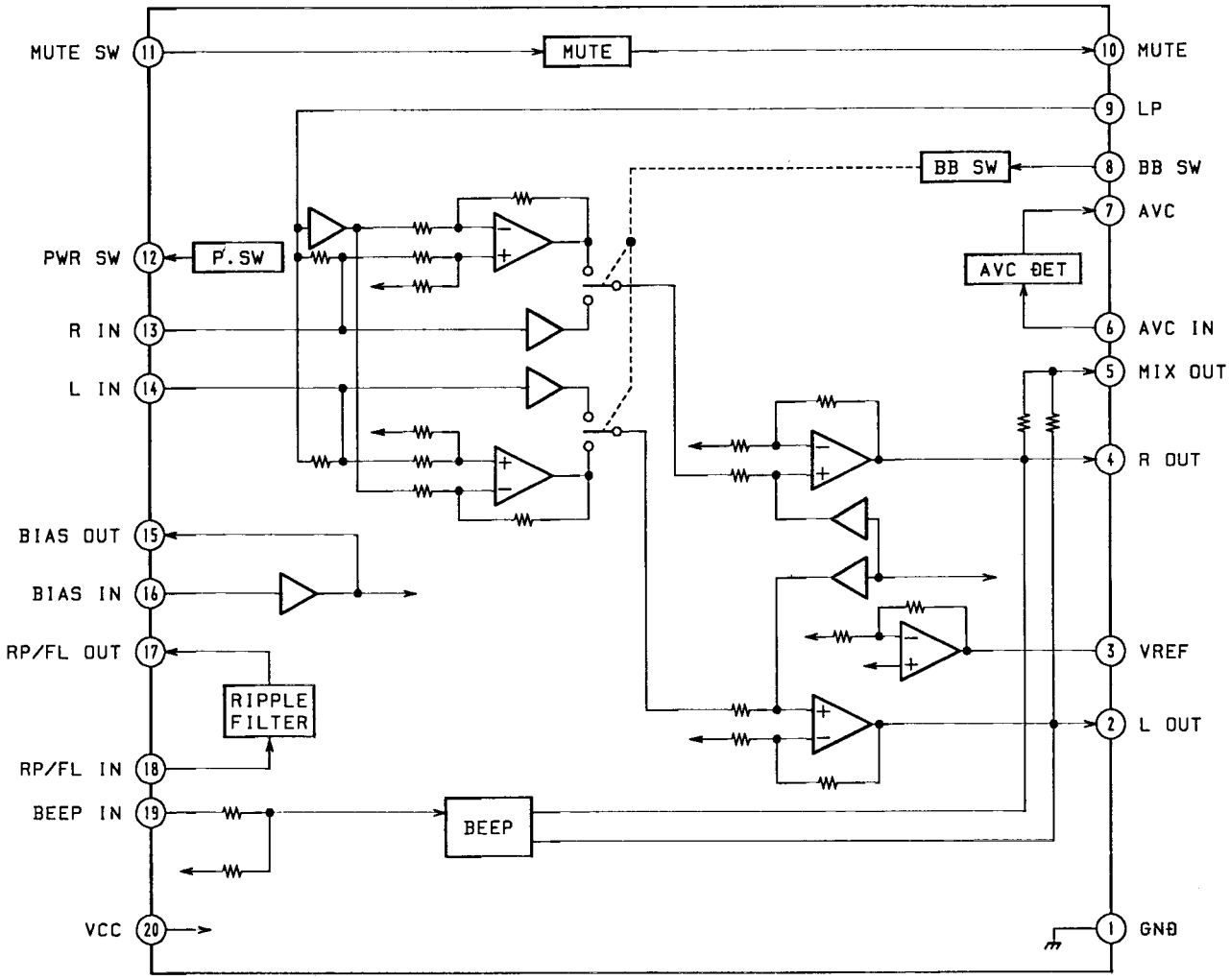


• **IC Block Diagrams**

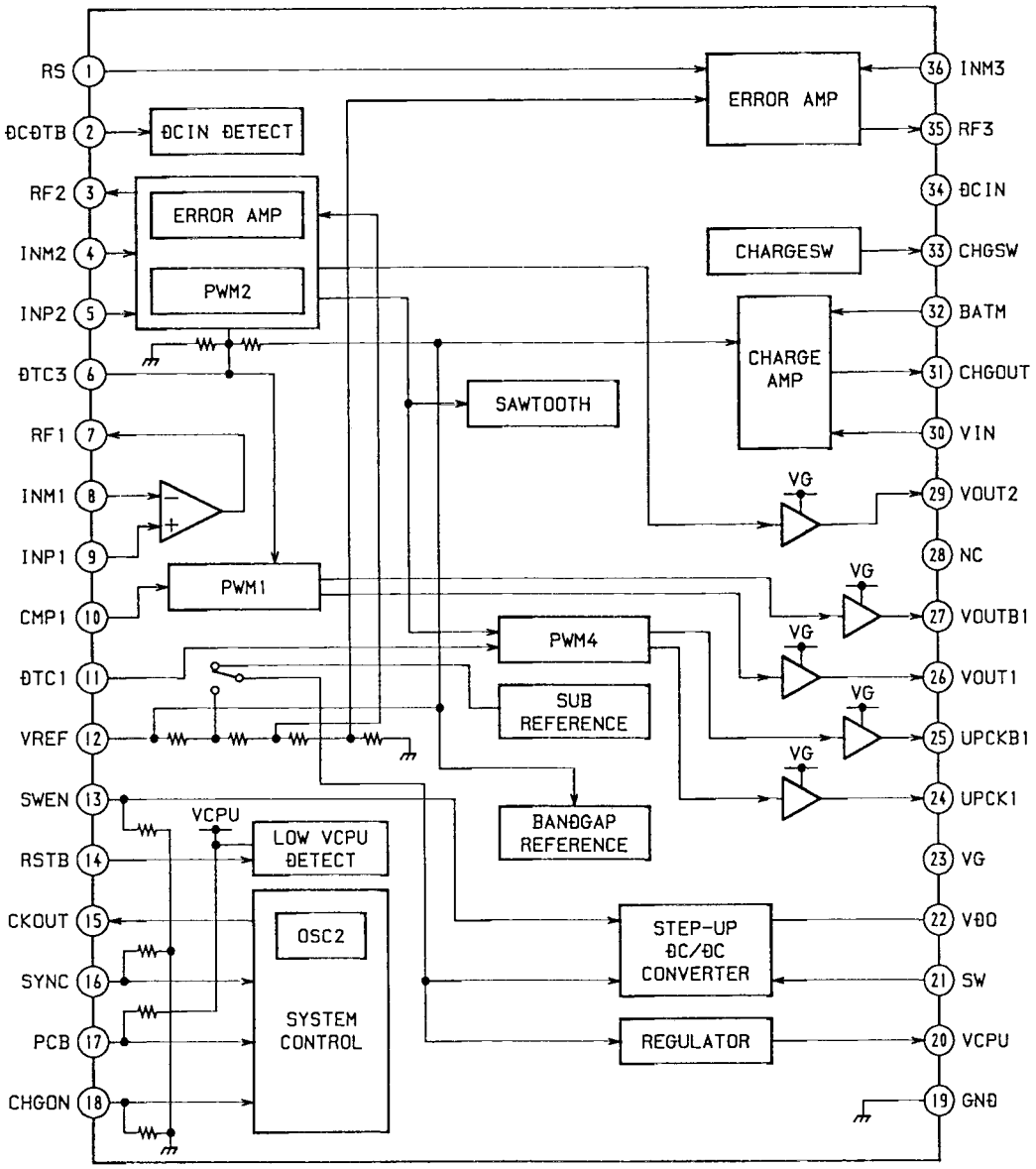
IC301 TC9470FN (EL)



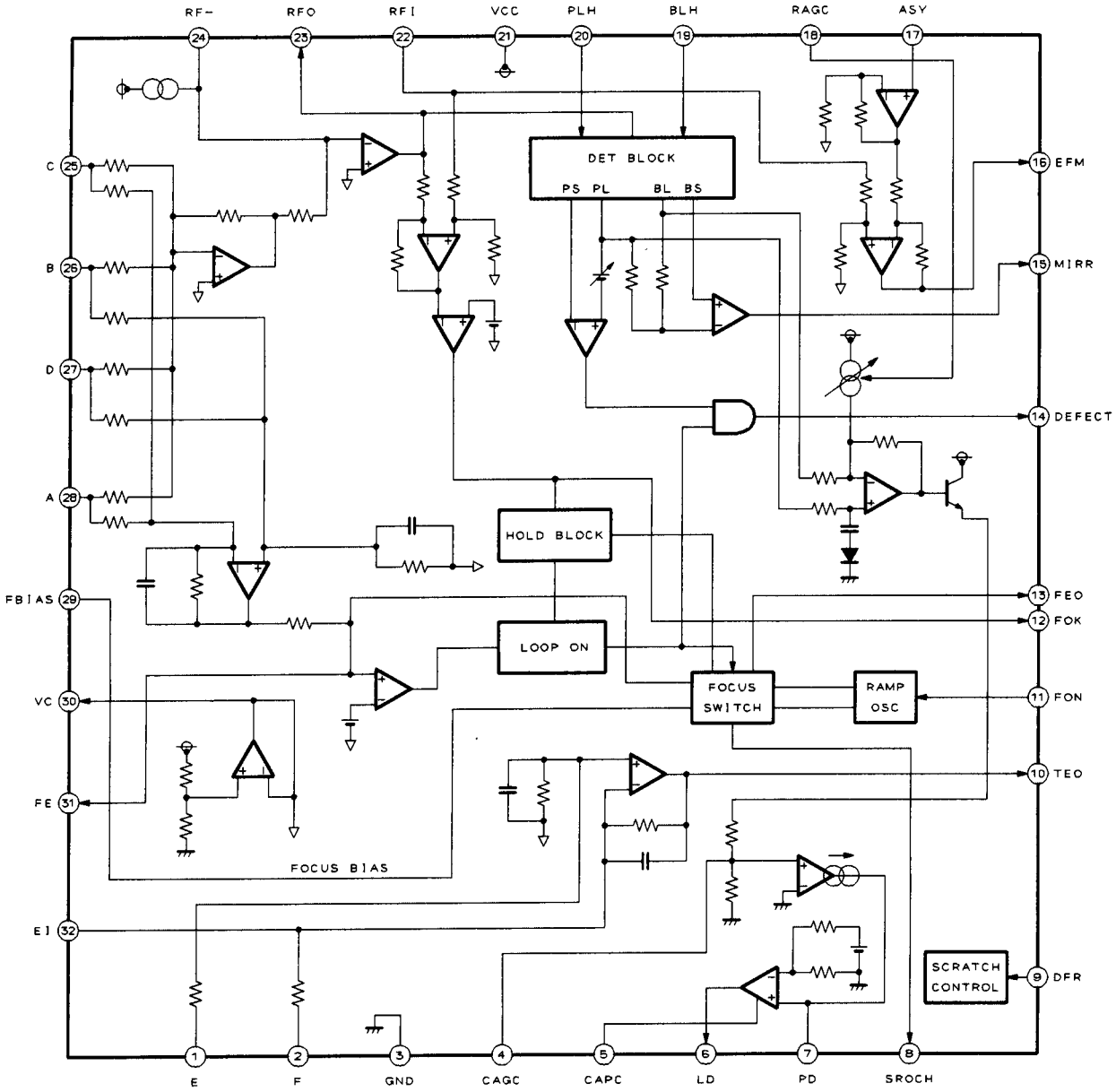
IC302 BA3574BFS-T1



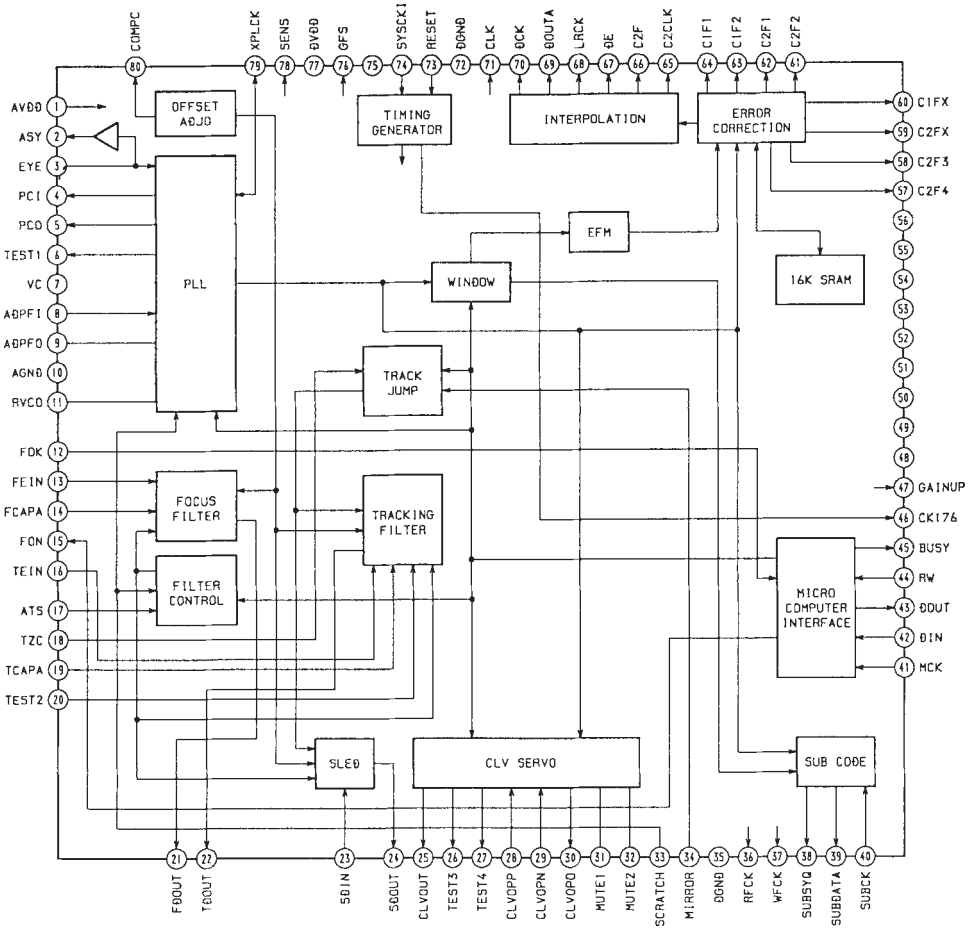
IC401 MPC18A26VMEL



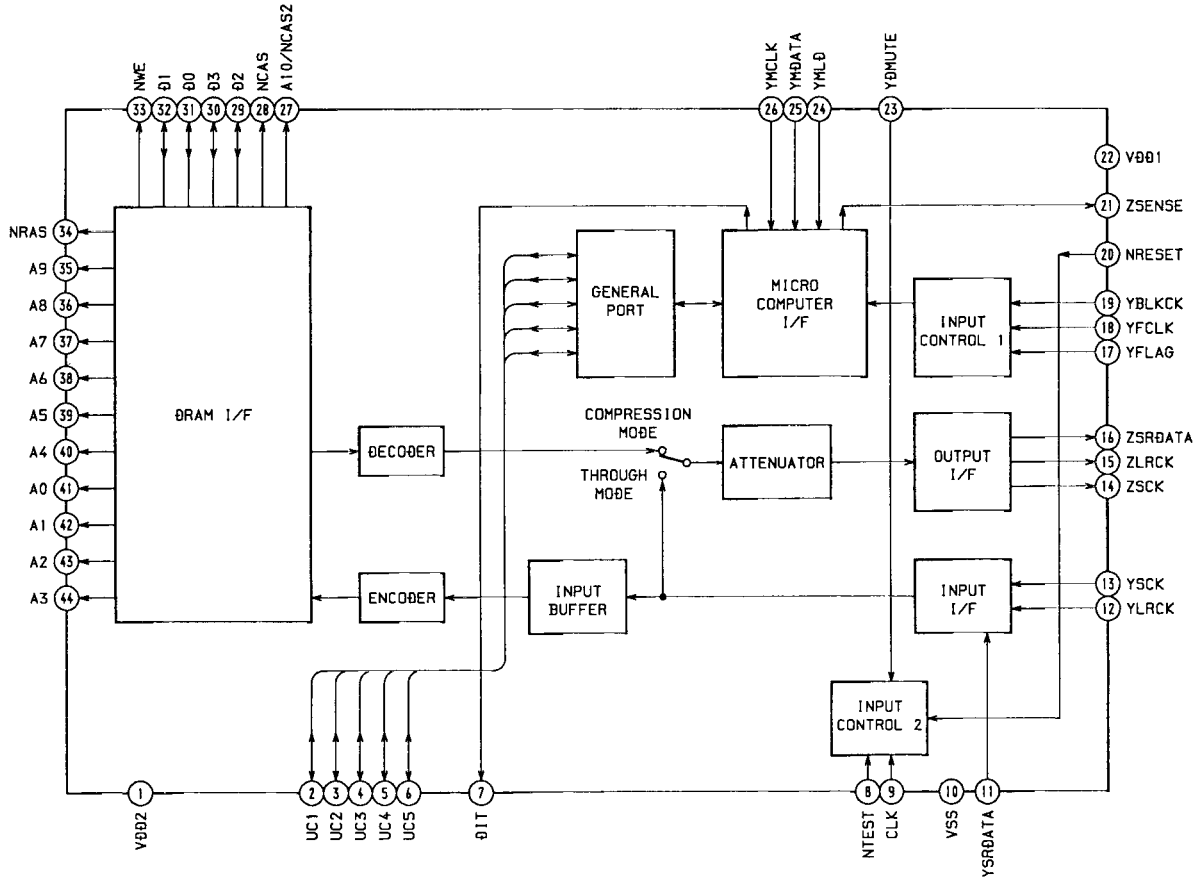
IC501 BA6386K



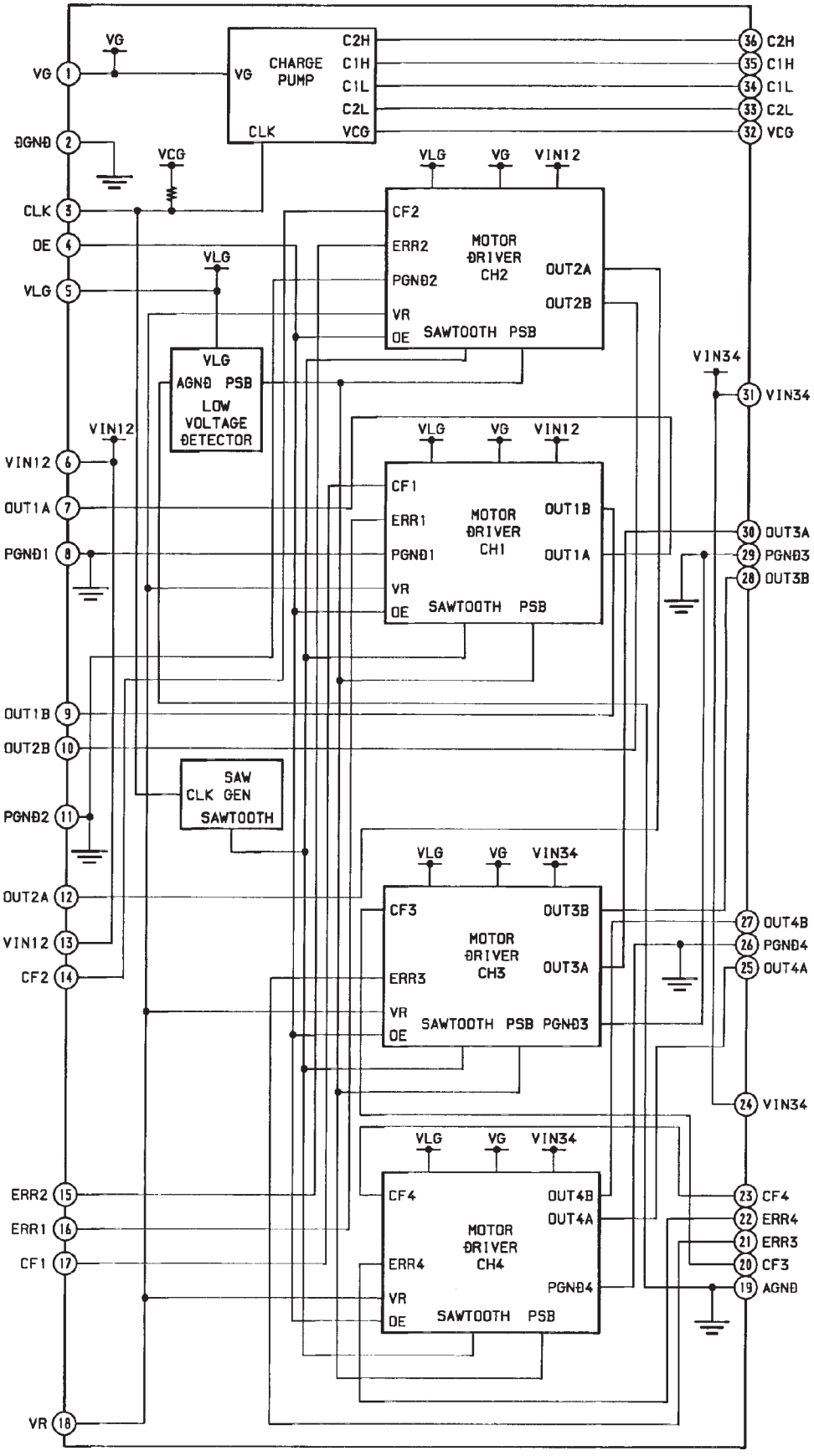
IC502 BU9325KS



IC601 SM5902AF



IC504 MPC17A51VMEL



6-4. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC801 MC68HC05L24-SC440463CFU (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	VDD	—	Power supply terminal (+3V)
2	XSLDON	O	Sled servo muting control signal output terminal "H": sled servo muting on
3	XBBSW	O	Bass boost selection signal output to the headphone amplifier (IC302)
4	OE	O	Output enable signal output to the MPC17A51VMEL (IC504) "L" active
5	VCCMNT	I	Main DC/DC converter voltage (+2.75V) monitor input (A/D input)
6	—	O	Not used (open)
7	LIGHT	O	Liquid crystal display back light on/off control signal output terminal "H": back light on Not used (open)
8	ESPO	O	Control signal output to the ESP (Electronic Shock Protection) circuit Not used (open)
9	DACLT	O	Serial data latch pulse signal output to the D/A converter (IC301)
10	C2POEN	O	C2PO (error condition monitor) signal control output terminal "L": stop mode, "H": searching
11	CHGON	O	Charging on output to the MPC18A26VMEL (IC401) "L": charge on
12	RMDAT	O	Serial data output for the liquid crystal display Not used (open)
13	VLCD3	O	Power supply output for the liquid crystal display bias
14	VLCD2	O	
15	VLCD1	O	
16	VSS	—	Ground terminal
17	VPP	—	Power supply terminal (0V)
18	TON	O	Traverse on/off control signal output to the auto traverse circuit
19	XOSC2	O	Standby control signal output to the headphone amplifier (IC302)
20	RESET	I	System reset signal input from the MPC18A26VMEL (IC401) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
21	OSC1	I	Main system clock input terminal (4.195 MHz)
22	OSC2	O	Main system clock output terminal (4.195 MHz)
23	SUBQ	I	Sub-code Q data signal input from the BU9325KS (IC502)
24	CDATA	O	Serial data output to the D/A converter (IC301) and BU9325KS (IC502)
25	SQCK	O	Sub-code Q data reading clock signal output to the D/A converter (IC301) and BU9325KS (IC502)
26	RW	O	Data read/write selection signal output to the BU9325KS (IC502) "L": reading mode, "H": writing mode
27	PCON	O	Power on/off control signal output to the MPC18A26VMEL (IC401) "L": power on, "H": power off
28	AMUTE	O	Analog muting on/off control signal output terminal "H": muting on
29	XAVLS	I	AVLS (Automatic Volume Limiter System) switch (S301) input terminal "L": normal mode, "H": limit mode
30	XRST	O	System reset signal output to the BU9325KS (IC502) "L": reset
31	XHOLD	I	HOLD switch input terminal "L": hold on, "H": hold off Not used in this set
32	XRCHG	I	Rechargeable battery pack detection switch (S901) input terminal "L": rechargeable battery pack in
33	XLMT	I	Sled limit-in detection switch (S901) input terminal The optical pick-up is inner position when "L"
34	XRSM	I	RESUME switch (S803) input terminal "L": resume on, "H": resume off
35	OPEN	I	CD door open/close detection switch (S801) input terminal "H": CD door open The stop status is reset with the falling edge of input signal
36	WP	I	Wake-up control signal input terminal The stop status is reset with the falling edge of input signal
37	XLT	O	Serial data latch pulse signal output to the D-RAM controller (IC601) (for ESP)

Pin No.	Pin Name	I/O	Function
38	HOLD2	I	Inputs of HOLD switch on the switch unit
39	SDTO	O	Serial data output to the D-RAM controller (IC601) (for ESP)
40	SDTI	I	Serial data input from the D-RAM controller (IC601) (for ESP)
41	SCK	O	Serial data transfer clock signal output to the D-RAM controller (IC601) (for ESP)
42	FOK	I	Focus OK signal input from the RF amplifier (IC501) "H": OK, "L": NG
43	BUSY	I	Busy signal input from the BU9325KS (IC502) "L": track jump mode, "H": servo loop on
44	BEEP	O	Beep sound output to the headphone amplifier (IC302)
45	SCOR	I	Sub-code sync (S0+S1) detection signal input from the BU9325KS (IC502)
46	NC	O	Not used (open)
47	VDD	—	Power supply terminal (+3V)
48 to 51	COM3 to COM0	O	Common drive signal output to the liquid crystal display on the switch unit
52	VREFH	I	Reference voltage input terminal (+3V) (for A/D converter)
53	VREFL	I	Reference voltage input terminal (0V) (for A/D converter)
54	ESPSL/TEST	I	Service mode setting terminal "L": service mode, Normally: fixed at "H"
55	KEY	I	Key input from the switch unit (A/D input)
56	RMKEY	I	Key input terminal (A/D input) Not used (open)
57	DCINMNT	I	DC in voltage detection input terminal (A/D input) Also used for DC IN detection
58	BATMNT	I	Battery voltage detection input terminal Also used for rechargeable battery/dry battery detection
59	CHGMNT1	I	Battery charging voltage detection input from the MPC18A26VMEL (IC401)
60	VSS	—	Ground terminal
61	CHGMNT2	I	Battery voltage detection input terminal (A/D input) Also used for rechargeable battery/dry battery detection Not used (fixed at "L")
62	OSMNT	I	DSP offset voltage adjustment voltage monitor input from the BU9325KS (IC502)
63 to 77	SEG0 to SEG14	O	Segment drive signal output to the liquid crystal display on the switch unit
78, 79	SEG15, SEG16	O	Segment drive signal output terminal Not used (open)
80	XEC4	I/O	Error correction "L": quadruple correction, "H": double correction Fixed at "L" in this set

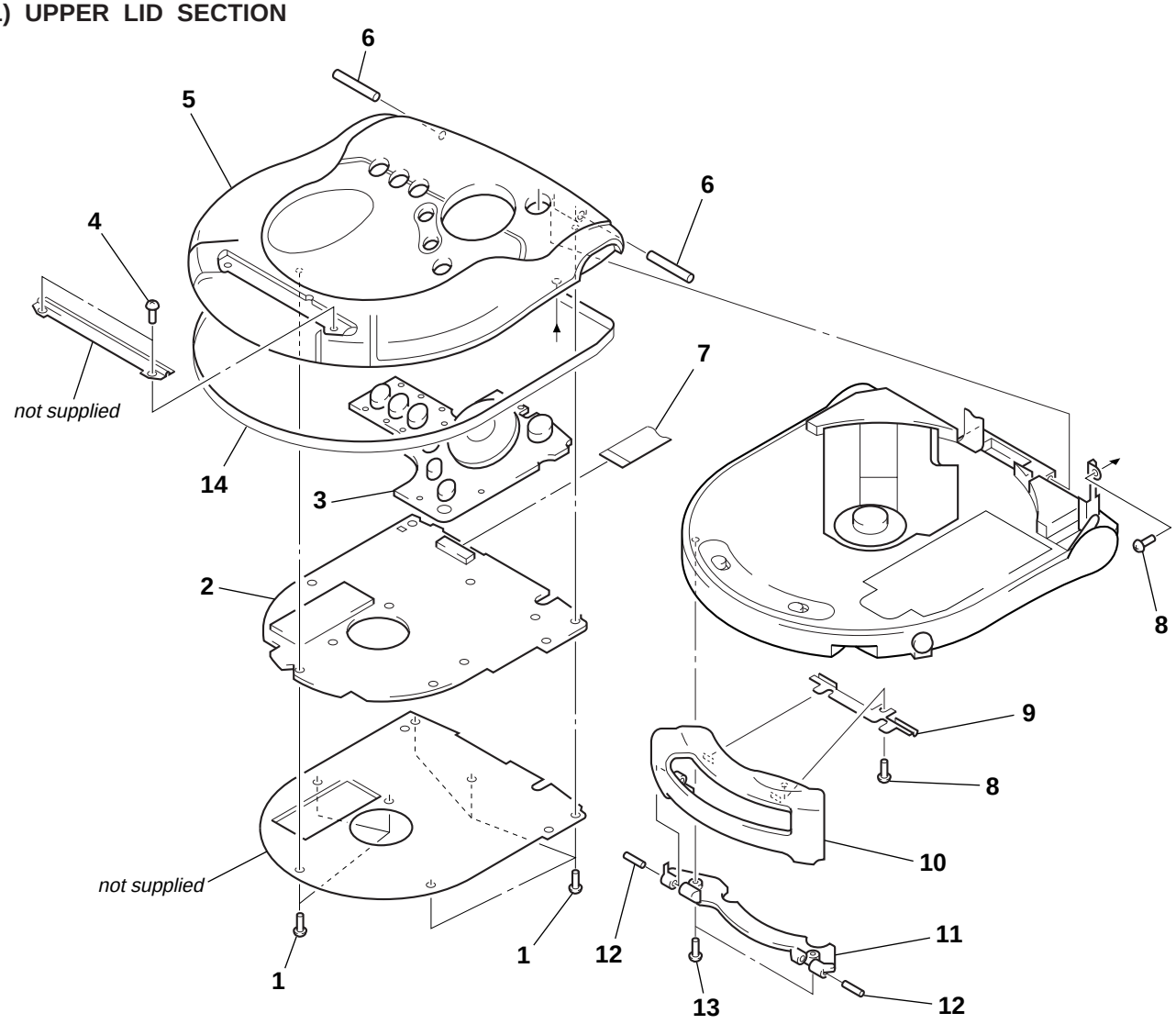
SECTION 7
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  AUS : Australian E92 : 120 V AC Area
  CND : Canadian FR : French
  E13 : 220-230 V AC Area
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

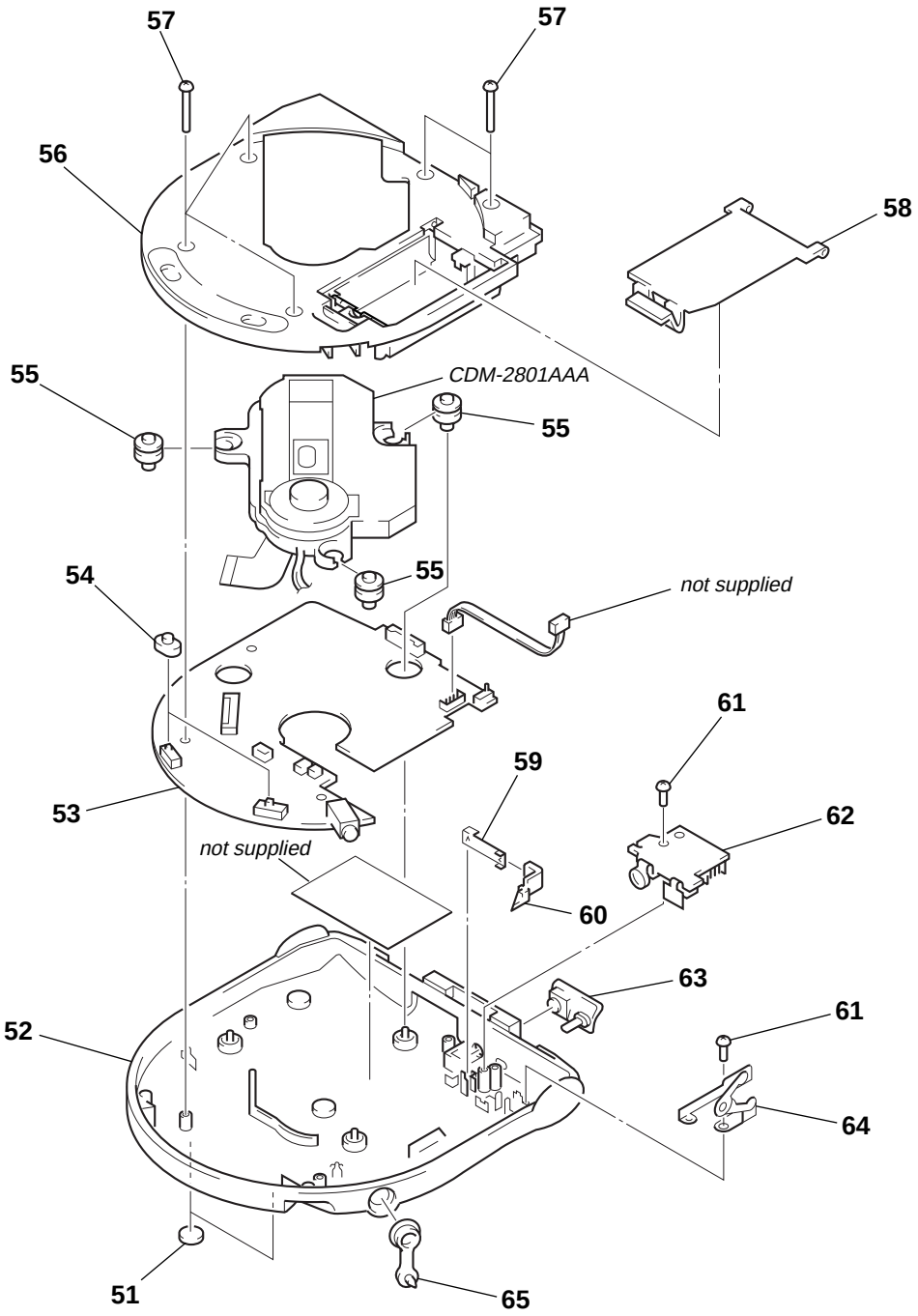
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) UPPER LID SECTION



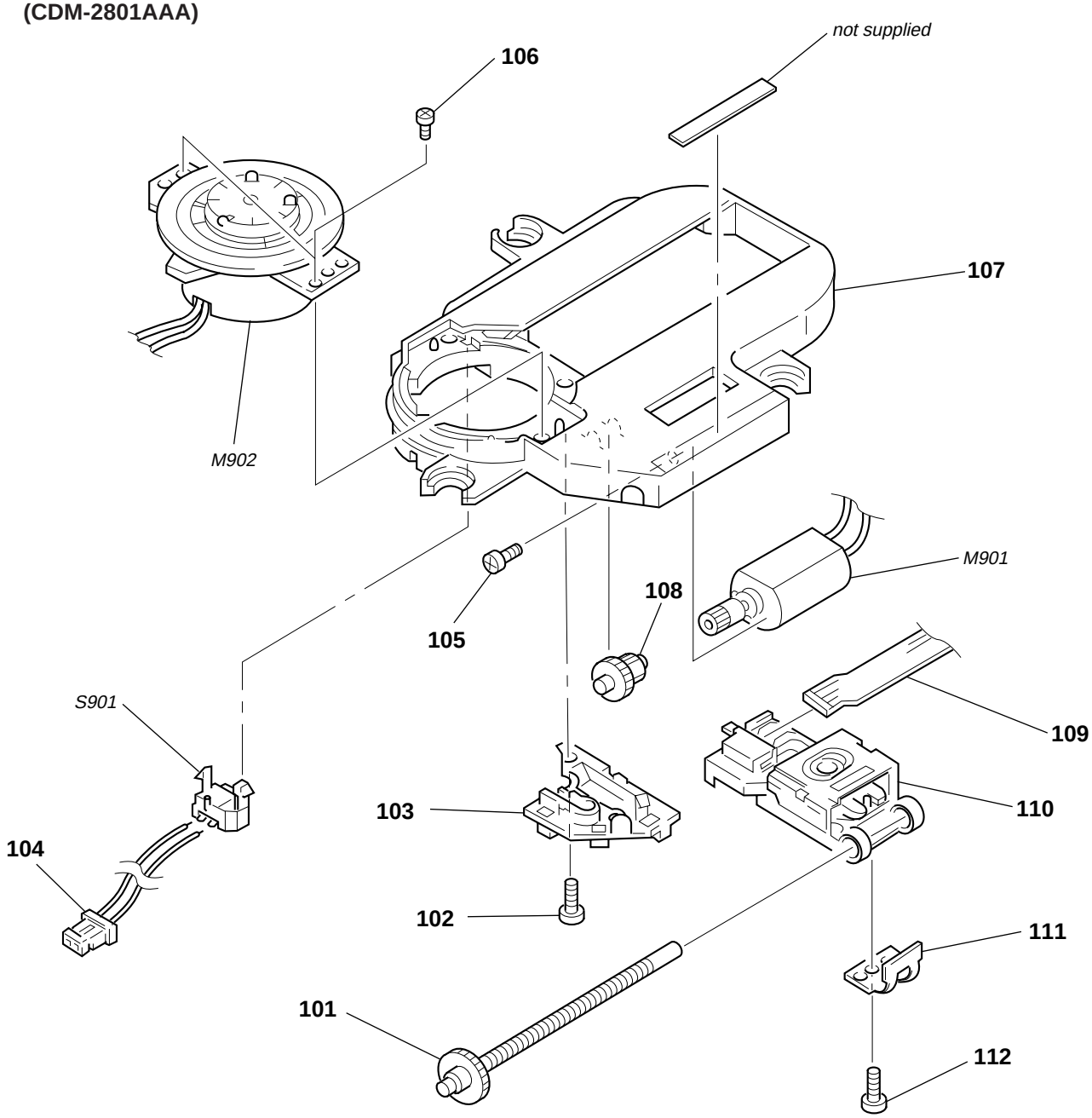
Ref. No.	Part No.	Description	Remark
1	3-893-942-91	SCREW (B1.7), TAPPING	
2	1-475-562-11	SWITCH UNIT	
3	X-4950-073-1	KEY ASSY (BLACK), RUBBER (for ES51: YELLOW/ES55: C-BLACK)	
3	X-4950-074-1	KEY ASSY (GLAY), RUBBER (for ES51: BLUE/ES55: C-BLUE)	
4	4-960-606-01	SCREW (1.7X3)	
5	X-4949-699-1	LID ASSY, UPPER (for ES55: C-BLACK)	
5	X-4949-700-1	LID ASSY, UPPER (for ES55: C-BLUE)	
5	X-4949-703-1	LID ASSY, UPPER (for ES51: YELLOW)	
5	X-4949-704-1	LID ASSY, UPPER (for ES51: BLUE)	
6	4-999-703-01	SHAFT	
7	1-669-183-11	FLEXIBLE BOARD	
8	4-908-792-01	SCREW (B2)	
9	4-999-194-01	PLATE (BUCKLE), FIXED	
10	4-999-192-01	BUCKLE (A) (for ES55: C-BLACK)	
10	4-999-192-11	BUCKLE (A) (for ES51/ES55: C-BLUE)	
11	4-999-193-01	BUCKLE (B) (for ES55: C-BLACK)	
11	4-999-193-11	BUCKLE (B) (for ES51/ES55: C-BLUE)	
12	7-626-311-51	SPRING-PIN 1.6X12	
13	3-370-960-01	SCREW, WATERPROOF	
14	4-999-189-01	PACKING (UPPER LID) (RED) (ES55: CURLFIT-BLUE)	
14	4-999-189-11	PACKING (UPPER LID) (BLUE) (ES51/ES55: CURLFIT-BLUE)	

(2) CABINET SECTION



Ref. No.	Part No.	Description	Remark
51	4-962-025-01	FOOT, RUBBER	
52	4-999-190-01	CABINET (for ES51: YELLOW/ES55: C-BLUE)	
52	4-999-190-11	CABINET (for ES51: BLUE)	
52	4-999-190-31	CABINET (for ES55: C-BLACK)	
53	A-3293-890-A	MAIN BOARD, COMPLETE	(US, CND, E13, E92)
53	A-3293-894-A	MAIN BOARD, COMPLETE (AEP, UK, AUS)	
53	A-3293-895-A	MAIN BOARD, COMPLETE (FR)	
54	4-999-207-01	KNOB (AVLS)	
55	4-994-757-01	INSULATOR	
56	X-4949-690-1	CHASSIS ASSY (for ES51: BLUE)	
56	X-4949-694-1	CHASSIS ASSY (for ES51: YELLOW/ES55)	
57	4-962-107-01	SCREW	
58	4-999-208-01	LID, BATTERY CASE	(for ES51: YELLOW/ES55)
58	4-999-208-11	LID, BATTERY CASE (for ES51: BLUE)	
59	4-964-897-01	SPRING (SEPARATOR)	
60	4-964-892-01	SEPARATOR	
61	4-908-792-01	SCREW (B2)	
* 62	1-669-185-11	POWER BOARD	
63	4-999-191-01	PACKING (DC IN)	
64	X-4949-689-1	ARM ASSY, CLICK	
65	3-326-520-01	PACKING, HP JACK	

(3) OPTICAL PICK-UP SECTION (CDM-2801AAA)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	A-3303-970-A	SCREW ASSY, FEED	
102	3-318-203-11	SCREW (B1.7), TAPPING	
103	4-972-163-04	SPRING, SLED	
104	1-690-530-81	LEAD (WITH CONNECTOR)	
105	7-627-850-17	SCREW, PRECISION +P 1.4X2.5	
106	3-719-401-11	SCREW (B1.7), TAPPING	
* 107	4-984-320-01	CHASSIS	
108	4-974-003-01	GEAR (B)	
109	1-660-965-11	SLIDE FLEXIBLE BOARD	
⚠110	X-4950-060-1	OPTICAL PICK-UP (DAX-01A2)	
111	4-972-165-01	RACK	
112	4-973-631-01	SCREW	
M901	A-3303-403-A	MOTOR ASSY, SLED	
M902	A-3304-989-A	MOTOR ASSY, TURN TABLE (SPINDLE)	
S901	1-571-099-21	SWITCH (1 KEY) (LIMIT)	

MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  AUS : Australian
  CND : Canadian
  E13 : 220-230 V AC Area
  E92 : 120 V AC Area
  FR : French
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3293-890-A	MAIN BOARD, COMPLETE (US, CND, E13, E92)			
	A-3293-894-A	MAIN BOARD, COMPLETE (AEP, UK, AUS)			
	A-3293-895-A	MAIN BOARD, COMPLETE (FR)			
		**********			
		< CAPACITOR >			
C101	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C104	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C107	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C111	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C201	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C204	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C207	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C211	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C302	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C303	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C304	1-113-690-11	ELECT CHIP	220uF	20%	4V
C305	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C307	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C308	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C309	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C310	1-115-156-11	CERAMIC CHIP	1uF		10V
C311	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C312	1-164-346-11	CERAMIC CHIP	1uF		16V
C313	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C314	1-115-156-11	CERAMIC CHIP	1uF		10V
C315	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C316	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C317	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C319	1-115-156-11	CERAMIC CHIP	1uF		10V
C320	1-164-346-11	CERAMIC CHIP	1uF		16V
C321	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C322	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C323	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C327	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C333	1-164-362-11	CERAMIC CHIP	470PF	5%	50V
C336	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C401	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C402	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C403	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C404	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C406	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C416	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C417	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C422	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C423	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C424	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C426	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C427	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C428	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C430	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C433	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C434	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C435	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C436	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C438	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C439	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C501	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C502	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-164-362-11	CERAMIC CHIP	470PF	5%	50V
C505	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C506	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C507	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C509	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C511	1-125-817-11	CERAMIC CHIP	10uF	10%	6.3V
C512	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C513	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C514	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C515	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C517	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C518	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C519	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C520	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C521	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C522	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C523	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C525	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C526	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C527	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description			Remark
C528	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C529	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C530	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C531	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C532	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C533	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C534	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C535	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C537	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C538	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C541	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C542	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C543	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C544	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C545	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C546	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C547	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C548	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C549	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C550	1-164-346-11	CERAMIC CHIP	1uF		16V
C551	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C555	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C558	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C559	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C560	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C562	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C565	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C580	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C581	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C601	1-164-346-11	CERAMIC CHIP	1uF		16V
C602	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C603	1-164-346-11	CERAMIC CHIP	1uF		16V
C604	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C605	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C611	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C801	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C802	1-164-346-11	CERAMIC CHIP	1uF		16V
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C805	1-115-156-11	CERAMIC CHIP	1uF		10V
C806	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C811	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C812	1-115-156-11	CERAMIC CHIP	1uF		10V
C813	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C819	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C820	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C850	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
		< CONNECTOR >			
CN401	1-506-469-11	PIN, CONNECTOR 4P			
CN501	1-566-530-11	CONNECTOR, FPC (ZIF) 14P			
* CN502	1-695-320-21	PIN, CONNECTOR (1.5MM) (SMD) 2P			
* CN503	1-695-320-31	PIN, CONNECTOR (1.5MM) (SMD) 2P			
* CN504	1-695-320-51	PIN, CONNECTOR (1.5MM) (SMD) 2P			
CN801	1-766-492-21	CONNECTOR, FFC/FPC (ZIF) 24P			
		< DIODE >			
D102	8-719-158-15	DIODE RD5.6S-B			
D202	8-719-158-15	DIODE RD5.6S-B			
D301	8-719-988-78	DIODE SB007W03Q			
D302	8-719-158-15	DIODE RD5.6S-B			
D308	8-719-404-49	DIODE MA111			
D402	8-719-313-73	DIODE SFPB-52			
D404	8-719-067-19	DIODE RB415D-T146			
D405	8-719-049-09	DIODE 1SS367-T3SONY			
D407	8-719-313-73	DIODE SFPB-52			
D411	8-719-049-09	DIODE 1SS367-T3SONY			
D511	8-719-049-09	DIODE 1SS367-T3SONY			
D601	8-719-024-81	DIODE 1SS300-TE85L			
D801	8-719-049-09	DIODE 1SS367-T3SONY			
D803	8-719-941-09	DIODE DAP202U			
D804	8-719-941-09	DIODE DAP202U			
D805	8-719-158-15	DIODE RD5.6S-B			
D811	8-719-158-15	DIODE RD5.6S-B			
		< FERRITE BEAD >			
FB102	1-414-385-11	INDUCTOR CHIP 0uH			
FB202	1-414-385-11	INDUCTOR CHIP 0uH			
FB301	1-550-907-21	FERRITE 0uH			
FB306	1-414-385-11	INDUCTOR CHIP 0uH			
FB308	1-550-907-21	FERRITE 0uH			
FB399	1-414-233-21	INDUCTOR CHIP 0uH			
FB501	1-216-295-00	SHORT 0			
FB601	1-216-295-00	SHORT 0			
FB602	1-216-295-00	SHORT 0			
		< IC >			
IC301	8-759-530-08	IC TC9470FN (EL)			
IC302	8-759-386-50	IC BA3574BFS-T1			
IC401	8-759-483-61	IC MPC18A26VMEL			
IC501	8-759-432-83	IC BA6386K			
IC502	8-759-484-38	IC BU9325KS			
IC504	8-759-483-62	IC MPC17A51VMEL			
IC505	8-759-387-31	IC TC75S55F (TE85R)			
IC507	8-759-082-60	IC TC7S66FU			
IC601	8-759-484-37	IC SM5902AF			
IC603	8-759-498-44	IC MSM51V4400D-70TSK			
IC801	8-759-536-42	IC MC68HC05L24-SC440463CFU			
		< JACK >			
J302	1-778-224-11	JACK (SMALL TYPE) (WATERPROOF) (🎧)			
J401	1-568-907-21	JACK, DC (POLARITY UNIFIED TYPE)			(DC IN 4.5V)
		< JUMPER RESISTOR>			
JC305	1-216-295-00	SHORT 0			
JC402	1-216-864-11	METAL CHIP 0 5% 1/16W			
JC601	1-216-295-00	SHORT 0			
JC602	1-216-864-11	METAL CHIP 0 5% 1/16W (FR)			
JC801	1-216-295-00	SHORT 0			
		< COIL >			
L301	1-414-233-21	INDUCTOR CHIP 0uH			
L302	1-414-233-21	INDUCTOR CHIP			0uH
L306	1-412-002-31	INDUCTOR CHIP 4.7uH			

MAIN

Ref. No.	Part No.	Description				Remark
L401	1-414-434-11	INDUCTOR	100uH			
L403	1-414-398-11	INDUCTOR	10uH			
L406	1-414-392-21	INDUCTOR	1uH			
L407	1-414-392-21	INDUCTOR	1uH			
L501	1-414-398-11	INDUCTOR	10uH			
L502	1-414-398-11	INDUCTOR	10uH			
L503	1-414-402-11	INDUCTOR	47uH			
L504	1-414-398-11	INDUCTOR	10uH			
L505	1-414-402-11	INDUCTOR	47uH			
L506	1-414-398-11	INDUCTOR	10uH			
L801	1-410-997-31	INDUCTOR CHIP	2.2uH			
L802	1-410-997-31	INDUCTOR CHIP	2.2uH			
		< TRANSISTOR >				
Q301	8-729-029-06	TRANSISTOR	DTC124EUA-T106			
Q401	8-729-920-85	TRANSISTOR	2SD1664-QR			
Q402	8-729-921-93	TRANSISTOR	2SB1182F5-QR			
Q403	8-729-043-46	TRANSISTOR	MMBF2201NT1			
Q405	8-729-320-66	TRANSISTOR	2SD1870			
Q501	8-729-216-22	TRANSISTOR	2SA1162-G			
Q502	8-729-905-57	TRANSISTOR	DTA124EU			
Q503	8-729-029-06	TRANSISTOR	DTC124EUA-T106			
Q504	8-729-029-06	TRANSISTOR	DTC124EUA-T106			
Q505	8-729-028-74	TRANSISTOR	DTA114TUA-T106			
Q511	8-729-028-74	TRANSISTOR	DTA114TUA-T106			
Q512	8-729-029-07	TRANSISTOR	DTC124TUA-T106			
Q513	8-729-028-74	TRANSISTOR	DTA114TUA-T106			
Q601	8-729-029-06	TRANSISTOR	DTC124EUA-T106			
		< RESISTOR >				
R101	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R103	1-216-835-11	METAL CHIP	15K	5%	1/16W	(US, CND, AEP, UK, E, AUS)
R103	1-216-837-11	METAL CHIP	22K	5%	1/16W	(ES55: FR)
R103	1-216-843-11	METAL CHIP	68K	5%	1/16W	(ES51: FR)
R107	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R108	1-216-839-11	METAL CHIP	33K	5%	1/16W	(US, CND, AEP, UK, E, AUS)
R108	1-216-839-11	METAL CHIP	33K	5%	1/16W	(ES55: FR)
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W	(ES51: FR)
R201	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R203	1-216-835-11	METAL CHIP	15K	5%	1/16W	(US, CND, AEP, UK, E, AUS)
R203	1-216-837-11	METAL CHIP	22K	5%	1/16W	(ES55: FR)
R203	1-216-843-11	METAL CHIP	68K	5%	1/16W	(ES51: FR)
R206	1-216-864-11	METAL CHIP	0	5%	1/16W	
R207	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R208	1-216-839-11	METAL CHIP	33K	5%	1/16W	(US, CND, AEP, UK, E, AUS)
R208	1-216-839-11	METAL CHIP	33K	5%	1/16W	(ES55: FR)
R208	1-216-837-11	METAL CHIP	22K	5%	1/16W	(ES51: FR)
R304	1-216-805-11	METAL CHIP	47	5%	1/16W	

Ref. No.	Part No.	Description			Remark
R306	1-216-809-11	METAL CHIP	100	5%	1/16W
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R311	1-216-841-11	METAL CHIP	47K	5%	1/16W
R312	1-216-142-00	RES, CHIP	4.7	5%	1/8W
R313	1-216-845-11	METAL CHIP	100K	5%	1/16W
R317	1-216-864-11	METAL CHIP	0	5%	1/16W
R401	1-216-815-11	METAL CHIP	330	5%	1/16W
R404	1-216-853-11	METAL CHIP	470K	5%	1/16W
R411	1-216-029-00	METAL CHIP	150	5%	1/10W
R412	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R413	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R414	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R417	1-216-837-11	METAL CHIP	22K	5%	1/16W
R419	1-216-857-11	METAL CHIP	1M	5%	1/16W
R421	1-216-843-11	METAL CHIP	68K	5%	1/16W
R427	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R428	1-216-805-11	METAL CHIP	47	5%	1/16W
R439	1-218-740-11	METAL CHIP	100K	0.5%	1/16W
R440	1-218-726-11	METAL CHIP	27K	0.5%	1/16W
R441	1-216-833-11	METAL CHIP	10K	5%	1/16W
R501	1-216-845-11	METAL CHIP	100K	5%	1/16W
R502	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R503	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R504	1-216-839-11	METAL CHIP	33K	5%	1/16W
R505	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R506	1-216-833-11	METAL CHIP	10K	5%	1/16W
R507	1-216-864-11	METAL CHIP	0	5%	1/16W
R509	1-216-835-11	METAL CHIP	15K	5%	1/16W
R510	1-218-877-11	RES, CHIP	18K	0.5%	1/16W
R511	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R513	1-216-821-11	METAL CHIP	1K	5%	1/16W
R514	1-216-845-11	METAL CHIP	100K	5%	1/16W
R517	1-216-833-11	METAL CHIP	10K	5%	1/16W
R518	1-216-833-11	METAL CHIP	10K	5%	1/16W
R519	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R521	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R522	1-216-857-11	METAL CHIP	1M	5%	1/16W
R525	1-216-821-11	METAL CHIP	1K	5%	1/16W
R526	1-216-821-11	METAL CHIP	1K	5%	1/16W
R527	1-216-843-11	METAL CHIP	68K	5%	1/16W
R528	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R531	1-216-821-11	METAL CHIP	1K	5%	1/16W
R532	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R533	1-216-841-11	METAL CHIP	47K	5%	1/16W
R534	1-216-864-11	METAL CHIP	0	5%	1/16W
R535	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R537	1-216-848-11	METAL CHIP	180K	5%	1/16W
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W
R542	1-218-748-11	METAL CHIP	220K	0.5%	1/16W
R543	1-216-845-11	METAL CHIP	100K	5%	1/16W
R544	1-216-821-11	METAL CHIP	1K	5%	1/16W
R545	1-216-849-11	METAL CHIP	220K	5%	1/16W
R547	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R548	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R549	1-216-833-11	METAL CHIP	10K	5%	1/16W
R551	1-216-308-00	METAL CHIP	4.7	5%	1/10W

Ref. No.	Part No.	Description			Remark
R567	1-218-740-11	METAL CHIP	100K	0.5%	1/16W
R569	1-216-846-11	METAL CHIP	120K	5%	1/16W
R571	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R576	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W
R603	1-216-833-11	METAL CHIP	10K	5%	1/16W
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W
R801	1-216-857-11	METAL CHIP	1M	5%	1/16W
R806	1-216-857-11	METAL CHIP	1M	5%	1/16W
R807	1-216-857-11	METAL CHIP	1M	5%	1/16W
R808	1-216-845-11	METAL CHIP	100K	5%	1/16W
R809	1-216-857-11	METAL CHIP	1M	5%	1/16W
R810	1-216-857-11	METAL CHIP	1M	5%	1/16W
R811	1-216-845-11	METAL CHIP	100K	5%	1/16W
R812	1-216-857-11	METAL CHIP	1M	5%	1/16W
R813	1-216-833-11	METAL CHIP	10K	5%	1/16W
R815	1-216-857-11	METAL CHIP	1M	5%	1/16W
R820	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R822	1-216-839-11	METAL CHIP	33K	5%	1/16W
R823	1-216-849-11	METAL CHIP	220K	5%	1/16W
R824	1-216-845-11	METAL CHIP	100K	5%	1/16W
R825	1-216-851-11	METAL CHIP	330K	5%	1/16W
R826	1-216-851-11	METAL CHIP	330K	5%	1/16W
R827	1-216-851-11	METAL CHIP	330K	5%	1/16W
R830	1-216-841-11	METAL CHIP	47K	5%	1/16W
R835	1-216-821-11	METAL CHIP	1K	5%	1/16W
R836	1-218-740-11	METAL CHIP	100K	0.5%	1/16W
R837	1-218-740-11	METAL CHIP	100K	0.5%	1/16W
R845	1-216-821-11	METAL CHIP	1K	5%	1/16W
R853	1-216-821-11	METAL CHIP	1K	5%	1/16W
R855	1-216-821-11	METAL CHIP	1K	5%	1/16W
R856	1-216-821-11	METAL CHIP	1K	5%	1/16W
R857	1-216-821-11	METAL CHIP	1K	5%	1/16W
R858	1-216-821-11	METAL CHIP	1K	5%	1/16W
		< VARIABLE RESISTOR >			
RV401	1-223-695-11	RES, ADJ, METAL GLAZE 10K			
RV502	1-223-578-11	RES, ADJ, METAL GLAZE 22K			
RV503	1-223-578-11	RES, ADJ, METAL GLAZE 22K			
		< SWITCH >			
S301	1-570-857-11	SWITCH, SLIDE (AVLS)			
S801	1-570-953-11	SWITCH, PUSH (1 KEY) (OPEN)			
S803	1-570-857-11	SWITCH, SLIDE (RESUME)			
		< TRANSFORMER >			
T401	1-429-850-11	TRANSFORMER, DC-DC CONVERTER			
		< VIBRATOR >			
X301	1-760-254-21	VIBRATOR, CERAMIC (16.94MHz)			
X801	1-767-192-11	VIBRATOR, CERAMIC (4.195MHz)			

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*	1-669-185-11	POWER BOARD
		**********
	4-978-695-01	PLATE, TERMINAL, BATTERY
	4-984-851-01	TERMINAL BOARD, BATTERY

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN901	1-506-469-11	PIN, CONNECTOR 4P	
		< SWITCH >	
S901	1-572-126-21	SWITCH, PUSH (1 KEY) (RECHARGEABLE BATTERY DETECT)	

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		MISCELLANEOUS	
		**********	
2	1-475-562-11	SWITCH UNIT	
7	1-669-183-11	FLEXIBLE BOARD	
104	1-690-530-81	LEAD (WITH CONNECTOR)	
109	1-660-965-11	SLIDE FLEXIBLE BOARD	
⚠110	X-4950-060-1	OPTICAL PICK-UP (DAX-01A2)	
M901	A-3303-403-A	MOTOR ASSY, SLED	
M902	A-3304-989-A	MOTOR ASSY, TURN TABLE (SPINDLE)	
S901	1-571-099-21	SWITCH (1 KEY) (LIMIT)	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-467-007-21	ADAPTOR, AC (AC-E455) (AUS)	
⚠	1-467-009-21	ADAPTOR, AC (AC-E455) (US, CND)	
⚠	1-467-195-11	ADAPTOR, AC (AC-E455A) (E92)	
⚠	1-467-243-11	ADAPTOR, AC (AC-E455B) (E92)	
⚠	1-473-115-11	ADAPTOR, AC (AC-E455D) (UK)	
⚠	1-473-116-31	ADAPTOR, AC (AC-E455D) (AEP, FR, E13)	
	1-528-444-31	BATTERY PACK (BP-DM10) (ES55: US)	
⚠	1-569-008-11	ADAPTOR, CONVERSION 2P (E13)	
	3-862-322-11	MANUAL, INSTRUCTION (SPANISH)	(AEP, E92)
	3-862-322-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-862-322-31	MANUAL, INSTRUCTION (FRENCH)	(CND, AEP, FR)
	3-862-322-41	MANUAL, INSTRUCTION (DUTCH) (AEP)	
	3-862-322-51	MANUAL, INSTRUCTION (SWEDISH) (AEP)	
	3-862-322-61	MANUAL, INSTRUCTION (PORTUGUESE)	(AEP)
	3-862-322-71	MANUAL, INSTRUCTION (GERMAN) (AEP)	
	3-862-322-81	MANUAL, INSTRUCTION (ITALIAN) (AEP)	
	3-862-322-91	MANUAL, INSTRUCTION (CHINESE) (E13)	
	3-862-394-11	MANUAL, INSTRUCTION (FINNISH) (AEP)	
	8-953-142-90	HEADPHONE MDR-W14G//K SET	(for ES51: YELLOW)
	8-953-142-93	HEADPHONE MDR-W14G/LK SET	(for ES51: BLUE)
	8-953-273-90	HEADPHONE MDR-G051LP/B SET	(for ES55: C-BLACK)
	8-953-273-91	HEADPHONE MDR-G051LP/L SET	(for ES55: C-BLUE)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-923-368-11

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Personal A&V Products Company

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